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Project Risk Identification for Government Projects in Anchorage and Palmer, AK

PM686 – Project Management Case study and Research

Fall 2014

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Abstract

This study reflects the research and analysis associated with identification of risk classifications and potential risks (both positive and negative) for use in project risk analyses in government projects managed via contract. Relying on literature reviews and surveys, a risk breakdown structure (RBS) and risk register with mitigation strategies are developed for use as a checklist by the organizations participating in the project; the General Services Administration (GSA) and the Plant Materials Center of the Alaska Department of Natural Resources (DNR/PMC). The survey findings support the original objective of establishing a common core of risks among the participating organizations. The 50 percent commonality among the top risks identified by both organizations was quite an unexpected result. These results, along with the substantial pool of risks and risk response strategies can serve as a foundation for the development of a risk management process for the participating agencies.

1.0 Introduction

Many people, including project managers, often assume risks without ever formally assessing or attempting to mitigate them. Today, the competition for technical achievement has become fierce, and the inability to accurately forecast technology and the associated design will contribute to a project's technical risk and can also lead to cost and/or schedule risk.

We read in the newspaper about cost overruns and schedule slips on a wide variety of medium-to-large scale development projects. There is no dispute that there is a strong relationship between technical risk and cost and schedule overruns, nor is there any dispute the project offices must assess and mitigate technical risk if they are to be successful. However, what must be kept in mind is that technical risk in and of itself does not directly result in cost overruns. The moderating variable is the manner in which a project's contract is administered, given the nature of the project's technical risk.

In essence, a well-crafted risk-appropriate contract can temper the sensitivity between technical risk and the probability of cost and schedule overruns, while a poorly crafted contract can actually increase the probability of cost and schedule overruns.

1.1 Project Objectives

The purpose of this project is to identify and consolidate a common core of risks associated with managing government projects via contracts. The primary stakeholder focus will be government program and project managers currently working with the General Services Administration (GSA) and those working with the Plant Materials Center of the Alaska Department of Natural Resources (DNR/PMC). The deliverables for this project are a paper, a risk breakdown Structure (RBS) and a risk register; the risk register will be made available for use as a checklist to identify risks associated with any future government projects. There are guides that currently exist that address risk in government projects, most notably the "Risk Management Guide for DoD Acquisition", produced by the Defense Acquisition University. This guide is known in the private as well as the public sector as a useful introductory source for risk identification and management. However, this guide does not stress the development and use of an RBS. The RBS acts as a checklist for discussion and brainstorming when identifying risks and also serves as a reference tool for managing risk throughout a project.

The Project Management Institute's (PMI's) Project Management Body of Knowledge (PMBOK®) provides a generic framework which strives to establish a uniformity across diverse industries in regard to the management of

programs and projects. The PMBOK®, 5th edition, and its current government extension serve as the foundation for the identification of a common core of risks associated with managing government projects via contract.

While it is understood that the dynamic nature of risk in general precludes complete identification of all risks associated with any endeavor, the objective is to identify as many risks as possible associated with the categories identified in the RBS that are applicable to government projects managed via contract.

1.2 Project Focus

The focus of this project is to identify and categorize the risks associated with managing government projects via contract and to incorporate these risks into a risk register for use as a checklist when performing risk analyses.

The RBS is a hierarchical representation of risks according to their risk categories and helps the project team to look at many sources from which the project risk may arise during a risk identification exercise (PMBOK®, 2013, p. 317). A typical RBS may include broad categories such as technical risk, commercial risk, and external risk (Haugen, pp. 158-9). A sample RBS incorporating these categories is shown in exhibit 1 (Haugen, p. 158). This is the RBS used as the "template" to gather data for the first survey performed as part of this project.

RISK BREAKDOWN STRUCTURE

1. Technical risk
   - 1.1 Scope Definition
   - 1.2 Requirements Definition
   - 1.3 Estimates, assumptions, and constraints
   - 1.4 Technical Processes
   - 1.5 Technology
   - 1.6 Technical interfaces
   - 1.7 Design
   - 1.8 Performance
   - 1.9 Reliability and maintainability
   - 1.10 Safety
   - 1.11 Security
   - 1.12 Test and acceptance
2. Management Risk
   - 2.1 Project Management
   - 2.2 Program/Portfolio Management
   - 2.3 Operations management
   - 2.4 Organization
   - 2.5 Resourcing
   - 2.6 Communication
   - 2.7 Health, safety and environment
   - 2.8 Quality
3. Commercial Risk
   - 3.1 Contractual terms and conditions
   - 3.2 Internal procurement
   - 3.3 Suppliers and vendors
   - 3.4 Subcontracts

3.5 Client/customer stability
3.6 Partnerships and joint ventures

4. External Risk
   4.1 Legislation
   4.2 Exchange Rates
   4.3 Site/facilities
   4.4 Environmental/weather
   4.5 Competition
   4.6 Regulatory
   4.7 Political
   4.8 Country
   4.9 Social/demographic
   4.10 Pressure groups
   4.11 Force majeure
5. Organizational Risk
   5.1 Decision Processes
   5.2 Financial
   5.3 Culture
   5.4 Resources
   5.5 Organizational structure

Exhibit 1. Sample Risk Breakdown Structure

The choice of risk categories for the RBS is influenced by several factors: (1) project scope, (2) technical complexity, (3) stakeholder requirements, (4) the type of project, and (5) external considerations (Known as Enterprise Environmental Factors, i.e., laws and regulations). Taking these factors into consideration while developing the RBS will enhance the risk identification process and provide project managers and project team members with a more comprehensive framework within which to identify risks.

The focus of this project is on risks unique to government projects managed via contract. While government projects follow the risk management processes as outlined in the PMBOK®, there are environmental and political risks, in addition to financial risks (PMBOK®, government extension, p. 65). Many government projects would be rejected or abandoned if they were subjected to objective financial analysis, as typically used in the private sector. Government projects often do not demonstrate a profit potential, but are intended to generate a return through benefit to the public at large (as in national defense) or to a segment of the public.

In contrast to objective financial analysis in the private sector, the success of a government project may also be evaluated according to subjective criteria, such as values held by stakeholders – the citizens – through their government body.

In the area of external risks, another consideration for government projects is compliance with laws and regulations. These laws and regulations establish limitations on each project and define risks that the citizens will not accept. Hence, these laws and regulations are intended to manage risk, although such laws do not use the word "risk".

Some laws and regulations expressed as mandatory policies and practices may be related to:

- Air and water quality
- Affirmative action and assistance to the disadvantaged groups
- Archaeological, historical, and architectural preservation
- Mitigation of impacts to affected businesses and communities
- Endangered species protection

- Protection of endangered ecological systems such as wetlands, grasslands, or waterways
- Noise or sound mitigation
- Religious freedom and the protection of sacred places
- Protection of scenic areas and parks

While the "Risk Management Guide for DoD Acquisition" is acknowledged in both the public and private sectors as an excellent introductory document on risk management (Conrow, p. 16), the guidance provided addresses risk management only in the context of major weapons systems and automated information Systems (AIS) acquisitions. However, the Office of Management and Budget (OMB) Circular A-11, which is the governing document for implementing risk management in the federal government, is applicable to all major capital asset acquisitions, including military construction (MILCON) projects, information technology (IT) projects and environmental restoration (ER) projects (Garrett, Rendon, p. 212). Further, the risk management guidance provided by the OMB circular is readily adaptable to state and municipal agencies; in fact, any governmental agencies that manage projects containing an approved, quantifiable budget may benefit from the risk management principles delineated in OMB Circular A-11.

This study asserts there are technical and other types of risks that are common among government contract projects and utilizes the results of surveys and literature searches to support this assertion. The deliverables resulting from this study can serve as a foundation upon which the participating agencies can establish a risk management program/process commensurate with the guidance provided in OMB Circular A-11.

1.3 Project Risk Management and Government Contracts

The sharing of and responsibility for risk experienced on a project/program is related to the contract type between the government and prime contractor (or prime contractor and subcontractor). In general, cost-type contracts (e.g., Cost plus fixed fee) place more risk on the government (buyer) than the prime contractor (seller), whereas the reverse is true for fixed-price contracts (e.g., firm-fixed price). There are gradations between these two extremes depending upon which specific type of contract is used; this is clearly illustrated in exhibit 2 (AFMC, 2008). The guidance illustrated in exhibit 2 is applicable to many, but certainly not all programs, and it is imprudent if not dangerous to accept and/or apply it indiscriminately.

To illustrate, if the prime contractor performs poorly on a cost-type contract, this may jeopardize its position for future procurements. Similarly, the government is not absolved of risk when it uses a fixed-price contract. If the contractor performs poorly, the government may not receive the promised item on time, or the contractor may not meet necessary performance specifications. When there are no close substitutes, the government may be stuck without any desirable, if not viable, options.

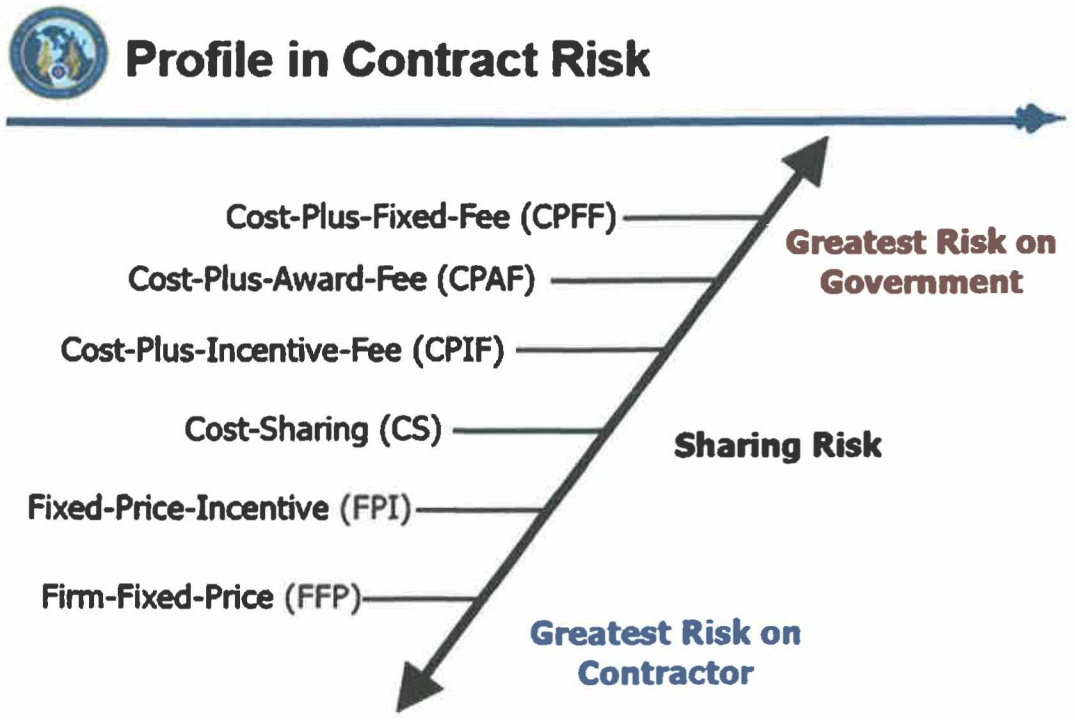

Exhibit 2. Contract Types and Risk

Consequently, regardless of the contract type used, both the government (buyer) and the prime contractor (seller) should generally have an effective risk management process implemented and used continuously (OMB Circular A-11 requires all federal agencies to manage risks to mission, goals, and objectives of the agency). Neither the government nor the prime contractor (seller) is absolved from having an effective risk management process in place because neither party will ordinarily face zero risk on most projects/programs. Failure to do this can lead to substantial adverse impacts, regardless of the contract type used.

1.4 Overview of Project Procurement (Contract) Management

Select elements of the Project Procurement Management processes from the PMBOK®, 5th edition, will be discussed as they relate to risk management.

- Plan Procurement Management (**PMBOK®, 12.1**): This is the process of documenting project procurement decisions, specifying the approach, and identifying the potential sellers. This process also includes evaluating the risks involved with each make-or-buy analysis. It also includes reviewing the type of contract planned to be used with respect to avoiding or mitigating risks (as discussed above), sometimes transferring risks to the seller.

- Conduct Procurements (**PMBOK®, 12.2**): This is the process of obtaining seller responses, selecting a seller, and awarding a contract. The key benefit of this process is that it provides alignment of internal and external stakeholder expectations through established agreements. A major area of risk potential in this process is the use of inadequate and/or vague verbiage in the development of the statement of work (SOW). Regardless of the type of

contract, a poorly crafted SOW can lead to considerable adverse impacts on the project in terms of cost, schedule, and quality.

- Control Procurements (**PMBOK®, 12.3**): This is the process of managing procurement relationships, monitoring contract performance, and making changes and corrections to contracts as appropriate. The key benefit of this process is that it ensures that both the seller's and buyer's performance meets procurement requirements according to the terms of the legal agreement. A major area of risk potential in this process is the potential for contract default by the seller (prime contractor) which can lead to arbitration and litigation.

- Close Procurements (**PMBOK®, 12.4**): This is the process of completing each procurement. The key benefit of this process is that it documents agreements and related documentation for future reference. A major area of risk potential is the potential for closing the out the procurements with unresolved claims outstanding. These unresolved claims may be subject to litigation after procurement closure.

The issues covered in the above procurement management processes are some of the more familiar ones. With increasing complexity in both the technical and external aspects of procurements, the risk factors increase and can become far more elaborate and subtle, requiring expert legal attention.

1.5 Report Structure

The structure of this report is organized into six chapters and nine appendices.

Chapter 1, the current chapter, provides background information on the project and the objectives and focus of the study.

Chapter 2 discusses the methodology used in the implementation of the project; classification, identification, analysis and management of risks.

Chapter 3 illustrates the results of literature searches to identify sources for risk breakdown structures, risk registers, risks related to procurement management, regulatory directives related to risks, and guides for risk management.

Chapter 4 discusses the data gathered for the project through the use of surveys distributed to the project managers of the participating agencies.

Chapter 5 presents the risk breakdown structure (RBS) and risk register developed during the implementation of the project and discusses the commonality of risks identified between the participating agencies.

Chapter 6 presents conclusions based on the project results and deliverables, including areas for additional research, and lessons learned.

Appendix A depicts the final RBS developed from the inputs provided by the participating agencies.

Appendix B depicts the risk register containing the risks identified by the participating agencies, along with the qualitative rankings of probability and impact, response strategies, and the qualitative rankings of the risks after initiation of corrective actions to address them.

Appendix C depicts the project management plan which contains the progress reports.

Appendix D depicts the survey instruments used to collect the data for the project.

Appendix E depicts the final presentation for the project.

Appendix F depicts the final tracking Gantt chart prepared for the project.

Appendix G depicts the project acceptance documentation.

Appendix H depicts the final version of the project management journal.

Appendix I lists the files contained on the accompanying CD.

2.0 Risk Analysis and Methodology

The objective of this project is to identify a common core of risks associated with the management of government projects via contract. The project's deliverables include an RBS, and risk register containing the risks identified by the PMs of the participating agencies. The RBS and Risk register can be used by the participating agencies as guides or checklists for performing risk analyses for projects. These documents can also serve as a foundation on which to build a risk management program/process for the participating agencies. This section of the paper discusses the approach taken to develop the RBS and risk register.

The PMBOK® Guide (Project Management Institute (PMI), 2013) and its government extension (PMI, 2006) are the sources for Project Risk Management processes used in this project. The PMBOK® is a globally recognized standard which readily facilitates the development of the RBS and risk register for this project and allows those deliverables to be effectively utilized by project managers trained in the PMI project management methodology.

A brief description of the six Project Risk Management processes are presented in the next section, followed by a discussion of the processes as utilized in the implementation of this project.

It is noted with emphasis that the material from the Project Risk Management processes is used simply to provide a framework for the mapping if this project's activities, and that this mapping exercise could be accomplished with any of the existing project management methodologies. Again, these processes were chosen because of their prevalence in the field, and in no way reflect a comprehensive overview or rigorous examination of all existing project management methodologies and theories.

2.1 Overview of the PMBOK® Guide Risk Management Processes

The PMBOK® Guide is comprised of 47 project management processes grouped into ten knowledge areas. Of the ten knowledge areas, the Project Risk Management knowledge area contains six PM processes. The six risk-related processes are (PMBOK®, 2013, p. 61):

- Plan Risk Management – The process of defining how to conduct risk management activities for a project
- Identify Risks – The process of determining which risks may affect the project and documenting their characteristics
- Perform Qualitative Risk Analysis – The process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact.
- Perform Quantitative Risk Analysis – The process of numerically analyzing the effect of identified risks on overall project objectives.
- Plan Risk Responses – The process of developing options and actions to enhance opportunities and reduce threats to project objectives.
- Control Risks – The process of implementing risk response plans, tracking identified risks, monitoring residual risks, identifying new risks, and evaluating risk process effectiveness throughout the project.

The focus of the project in terms of the risk management processes are the following: (1) Plan Risk Management, (2) Identify Risks, (3) Qualitative Risk Analysis, and (4) Risk Response Planning. The development of the RBS based on literature reviews and surveys reflect the use of risk management planning. Risk Identification entails the identification and classification of project risks and is based on literature reviews and surveys. Qualitative Risk Analysis is reflected in the use of a survey to develop average probability and impact ratings for the major risks. Risk Response Planning encompasses the development of risk response strategies based on inputs obtained via survey.

The following four sections discuss how the implementation of the processes and activities associated with this project correlate with each of the Project Risk Management processes.

2.2 Risk Management Planning

Risk Management Planning is "the process of defining how to conduct risk management activities for a project." (PMBOK®, 2013, p.313). The activities associated with this process must be tailored to individual organizations and projects. This project focuses on the development of a general RBS to be used to organize risks common to government projects accomplished by contract. The RBS can be used early in the Risk Management Planning process as a tool for brainstorming and categorizing risks. The hierarchical structure allows for increasing levels of detail in the identification and categorization process. An alternative to the RBS is to simply develop a list of items. However, the value of using the RBS lies in its ability to encompass categories of risks external to the organization or agency as well as categories of technical risk that may affect the project's outcome. The findings of literature reviews and a survey were used to identify risk categories to include in the RBS. Discussion of the survey and literature review methodologies follows.

2.2.1 Survey Methodology

The first survey used in this project was used to identify risks as well as to expand upon the categories of the initial RBS template obtained as a result of literature reviews. The survey requested inputs for both positive and negative risk items and any additions or changes to the risk categories listed in the RBS template submitted with the survey.

2.2.2 Literature Review Methodology

The literature reviews performed for this project served as the primary source for the RBS template used in the project, as well as the source for risk categories associated with government projects accomplished by contract. Keyword searches using the Google search engine (Google, 2014) and Wikipedia (Wikipedia, 2014) provided results for policy and regulations for government implementation of risk management, in addition to the RBS template. Books pertaining to the keywords were also consulted. The results are detailed in section 3.0, "Literature Survey".

2.3 Risk Identification

"Identify risks is the process of determining which risks may affect the project and documenting their characteristics. The key benefit of this process is the documentation of existing risks and the knowledge and ability it produces to the project team to anticipate events…

…Identify risks is an iterative process, because new risks may evolve or become known as the project progresses through its life cycle." (PMBOK®, 2013, pp. 319-321). This project uses a survey and literature searches for the Risk Identification process.

2.3.1 Survey Methodology

A survey was used in this project to identify risk items. The survey utilized an RBS template obtained through literature searches and was transmitted via e-mail to project/program managers of the participating organizations; the General Services Administration (GSA) and the Plant Materials Center of the Alaska Department of Natural Resources (DNR/PMC). Survey respondents were asked to populate the categories in the RBS template with risks associated with managing government projects via contract. They were also asked to provide positive as well as negative risks as well as provide any changes or additions to the risk categories of the RBS as they deemed appropriate.

2.3.2 Literature Review Methodology

The Literature used in this project was also used to identify categories of risks as pertains to government projects accomplished by contract. The primary source used was the "Risk Management Guide for DoD Acquisition" (Defense Acquisition University, Sixth edition, August, 2006). This source was compared to another source for risk categories. This source is also known in private as well as public sectors as a good introductory guide to risk management.

2.4 Qualitative Risk Analysis

"Perform Qualitative Risk Analysis is the process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact. The key benefit of this process is that it enables project managers to reduce the level of uncertainty and to focus on high-priority risks." (PMI, 2013, p. 328). A second survey was distributed to the project participants in order to solicit the qualitative ranking of the set of risks collected from the first survey.

Separate rankings for the probability and impact of risks are included in the qualitative rankings. Although probability refers to the likelihood that a given event will occur and is usually expressed as a range of percentages, for the purposes of this project, three qualitative categories of probability were used: low, medium, and high. Analysis of the results of the second survey were used to determine these categories rather than directly presenting them to the survey respondents to use in order to avoid survey bias. Risk impact refers to the consequence(s) of the realized risk(s) (the risk(s) actually occurring). Realized risks can impact the cost, scope, schedule, or quality of a project in a variety of ways. In a qualitative analysis the impacts are expressed in ranges. As with the probability rankings, this project uses three qualitative categories for project impact based on responses to the second survey: low, medium, and high.

The generalized matrix shown in exhibit 3 (Fisher, 2006, p. 43) was used to prioritize risks, based on the three categories (low, medium, and high) for risk probability and impact.

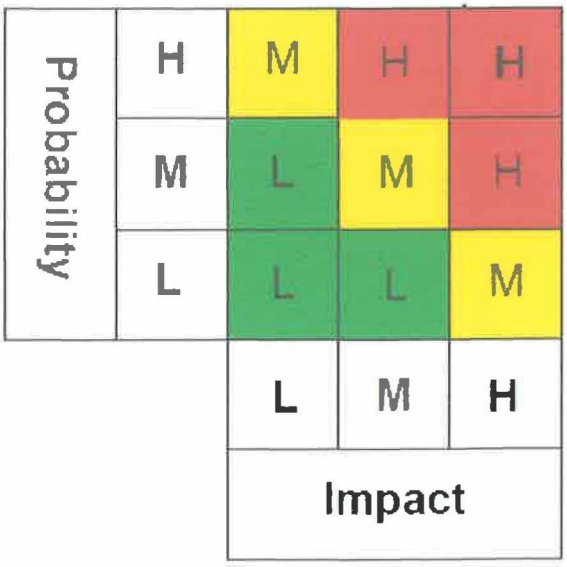

Exhibit 3. Qualitative Risk Probability and Impact Matrix

Once the risks are so prioritized, the ones with high probability and impact receive the highest priority for further analysis, while risks with low probabilities and low impacts should be monitored closely during the timeframe of their likely occurrence.

The qualitative impact classifications used for this project are intentionally simple. The objective is to identify the risks and give them a relative priority, so that each participating agency can determine how to integrate each applicable risk into the "risk portfolio" of the agency's specific projects or its risk management process.

2.4.1 Survey Methodology

A spreadsheet-based risk register was used in a second survey that was distributed to the participating agencies in order to assess the importance of each of the types of risks identified during the Risk Identification process. The participants were asked to provide a qualitative ranking for each risk and a category of impact, such as cost or schedule. The rankings were then analyzed in order to develop the ranges for the high, medium, and low qualitative categories.

2.5 Risk Response Strategies

"Plan Risk Responses is the process of developing options and actions to enhance opportunities and to reduce threats to project objectives. The key benefit of this process is that it addresses the risks by their priority, inserting resources and activities into the budget, schedule, and project management plan as needed." (PMBOK®, 2013, p.342). This project used a second survey to solicit both risk response strategies for each item identified in the first survey and the post-response qualitative probability and impact ratings. The participants were asked to fill in a few of the blank cells in the spreadsheet-based risk register pertaining to the possible risk response strategies and the mitigated qualitative rankings resulting from the strategy.

3.0 Literature Survey

A literature survey comprised an important part of this project. The findings were used to identify sources for the risk breakdown structures, risk registers, risks related to contract (procurement) management, regulations and guidance related to risks and risk management in government projects, and guides related to project and risk management. This section presents the keywords used in the literature searches and how the content from each document was used in this project.

3.1 Key Words

Preliminary research performed by the author was based on materials previously presented in the various courses taken in the MSPM program in addition to materials already familiar to the author as they relate to risk and risk management. It was through this initial body of documentation that key words were researched as they presented themselves for clarification, substantiation and/or relevance.

3.2 Documents Used in this Project

This section summarizes the contributions and relevance of each of the documents used. There were three guides used, and seven texts, which generated two keywords in addition to the five keywords used directly for research. Summaries of the usages of the documents for this project follows.

3.2.1 Documents and Keywords

A Guide to the Project Management Body of Knowledge (PMBOK® Guide) (Project Management Institute, 2013). As discussed in section 2.0 of this paper, the PMBOK® Guide was used as the source for the Project Risk Management processes used in this project. Material from the Project Procurement Management knowledge area was used as well.

Government Extension to the Project Management Body of Knowledge (PMBOK®) (PMI, 2004). This guide was used to identify critical external risks, such as social, environmental, and political risks that can affect government projects in addition to financial risks. These risks were discussed in section 1.2 of this paper.

Project Risk Management for Alaska Oil and Gas Capital and Digital Projects (Fisher, 2006). Mr. Fisher's paper focuses on risks as related to projects managed in the private sector. His work served as the impetus for the current project and his data gathering and analysis methodology is used extensively throughout this project.

Risk Management Guide for DoD Acquisition (Defense Acquisition University, 2006). This guide was used as a reference for risk categories. The guide contains a list of risk categories, but does not address the use of a risk breakdown structure (RBS) as a tool for risk identification. While this guide is known in the private as well as the public sector as an excellent introductory document on risk management, it addresses risk management only in the context of major weapon systems and automated information systems (AIS). The final choice for an RBS template was located in the following document.

Work Breakdown Structures for Projects, Programs, and Enterprises (Haugan, 2008). This was one of a number of texts used in the "Project Scope Management" course taught under the MSPM program and the sample RBS it contains is depicted in exhibit 2. This template was used to acquire the risk inputs for this project. The Haugan RBS contained 39 risk categories compared to the 16 categories depicted in the DoD Risk Management Guide. Google was used to research the keywords "risk breakdown structure", but the Haugan template was chosen because of its format and content.

U.S. Military Program Management: Lessons learned and Best Practices (Garrett, Rendon, 2007). This text identifies the Office of Management and Budget (OMB) Circular A-11 as the governing document for implementing risk management in the federal government. Discovering this fact in this document led to the google search for "OMB Circular A-11; a pdf file of the document was obtained from the OMB web site (www.OMB.gov).

Office of Management and Budget Circular A-11, Preparation, Submission, and Execution of the Budget (2014). Sections 270.24 through 270.29 of this circular addresses the need for all federal agencies to manage risks to mission, goals, and objectives of the respective agencies. All federal agencies are expected to manage risks and challenges related to delivering the organization's mission. According to the circular, effective risk management:

- Creates and protect value;
- Is an integral part of all organizational processes;
- Is part of decision-making;
- Explicitly addresses uncertainty;
- Is systematic, structured, and timely;
- Is based on the best available information;
- Is tailored and responsive to the evolving risk profile of the agency;
- Takes human and cultural factors into account;
- Is dynamic, iterative and responsive to change;
- Facilitates continual improvement of the organization.

To achieve effective risk management, the circular promotes the use of Enterprise Risk Management (ERM) as a tool that can help agencies to properly identify and manage risk performance. Keywords search on ERM (Wikipedia, 2014): ERM provides a framework for risk management, which typically involves identifying particular events or circumstances relevant to the organization's objectives (risks and opportunities) assessing them in terms of likelihood and magnitude of impact, determining a response strategy, and monitoring progress…

…ERM can also be described as a risk-based approach to managing an enterprise, integrating concepts of internal control, the Sarbanes-Oxley act, and strategic planning.

Systems Engineering, Principles and Practice (Kossisakoff, 2011). This text has a section on risk management which uses the DoD Risk Management Guide as its source. This is one of three non-DoD private sector sources that refers to the DoD guide. This source illustrates that the principles of risk management as depicted in the DoD guide can be adapted for use in private sector organizations.

Project Management: A Systems Approach to Planning Scheduling, and Controlling (Kerzner, 2013). Supporting material from the chapter on "Contract Management" was used from this text. The material on risk response options was derived in part from the DoD risk management guide; this is the second of three sources that refer to and/or use material from the DoD Risk Management Guide.

Effective Risk Management: Some Keys to Success (Conrow, 2000). This text contains results from Dr. Conrow's research on project cost and schedule overruns and their correlation with risk management. Dr. Conrow evaluated a large number of projects and programs dating from the late 1950s though the late 1980s. His results revealed that while risk management principles are required on government projects/programs, there is no guarantee that an effective risk management process will exist on any of these projects/programs. The text also illustrates a risk management process based on the DoD Risk Management Guide that can be adapted to both the private and public sectors. Dr. Conrow was also one of the original contributors to the development of the DoD Risk Management Guide.

The Failure of Risk Management (Hubbard, 2009). This project uses the principles and processes of risk management as suggested by the PMBOK® Guide. In his text, Dr. Hubbard discusses the use of "calibration training" (this training has as its objective to increase the ability of Subject Matter Experts to assess subjective odds) and how the vast majority of risk assessment methods practiced make no use of this training. This is discussed further in section 6.0 of this paper.

OMB Circular A-123 was referenced in the OMB Circular A-11. Keyword search of the OMB-123 on the OMB web site provided a pdf file of the circular. This circular focuses on the management of internal controls to support reasonable assurance that management has met three objectives of internal controls:

- Operations – Effectiveness and efficiency of operations.
- Reporting – Reliability of reporting for internal and external use.
- Compliance – Compliance with applicable laws and regulations.

Both ERM and Circular A-123 activities provide risk management support in different but complimentary ways. ERM embraces the disciplined foundation of A-123 policy, which includes structure and staff awareness of good controls, procedures, accountability, and program management. Because ERM draws on an interrelated risk portfolio, it is important to understand the controls related to key organizational risks and how these controls can be used to mitigate or reduce the level of exposure to risk.

The key words "Sarbanes-Oxley Act" were referenced in OMB Circular A-11: Section 404 of the Sarbanes-Oxley Act of 2002 requires U.S. Publicly traded corporations to utilize a control framework in their internal control assessments. For U.S. government agencies, this compliance is satisfied by OMB Circular A-123. OMB Circular A-11 Calls for federal agencies to satisfy the objectives of OMB circular A-123 and the use of the principles of ERM to satisfy the requirements of Sarbanes-Oxley.

4.0 Data Gathering

Surveys were used in this project to identify, analyze and develop response strategies for risks as related to government projects accomplished by contract. This chapter provides a summary of the survey findings.

4.1 Survey Findings

Two surveys were used to solicit risk items, categories, rankings, response strategies and mitigated rankings from the participating organizations. The first survey requested risk items related to managing government projects by contract. An RBS template was provided for the participants to populate with risk items and they were also requested to add to or change the risk categories of the RBS as they saw fit. This survey was sent on September 2nd with responses requested back by September 12th. The Second Survey provided the project participants with a risk register populated with the risk items identified in the first survey and requested that respondents provide rankings for each risk and a few risk response strategies and mitigated rankings. This survey was sent out on September 22nd with responses Requested back by October 6th. The following sections present a summary of the two surveys.

4.1.1 First Survey: Risk identification

The first survey was sent to the organizational points of contact of the participating agencies for distribution to those individuals they determined could participate in the survey. Eight participants from the GSA and four from DNR/PMC for a total of 12 participants contributed to the project. A total of 62 risks were identified by the respondents; 47 from GSA and 15 from DNR/PMC. Only negative risks were identified. None of the participants added or changed any of the risk categories in the RBS. The consolidation of the risks identified by both agencies is depicted in the RBS shown in Exhibit 4. After the consolidation, the RBS was re-submitted with the second survey, and each organization was requested to indicate with an asterisk which, if any, risk inputs identified by the other organization would be applicable to their agency. This is depicted in the RBS by asterisks of the opposite color of the risks indicated.

RISK BREAKDOWN STRUCTURE

(GSA AND PMC/DNR CONSOLIDATION)

22 SEPTEMBER 2014

GSA provided the risk inputs indicated in **RED**.

PMC/DNR provided the risk inputs indicated in **BLUE**

1. Technical risk
   - 1.1 Scope Definition
     - **1.1.1 Reliance on reams of federal and other specifications and references dramatically escalates costs yet does not clearly define scope.**
     - **1.1.2 End user's needs not adequately considered in project design.**
     - **1.1.3 Current facility conditions not fully reviewed - resulting in overlooked deficiencies and increased project costs. ***
   - 1.2 Requirements Definition
     - **1.2.1 Government not able to clarify and/or define the relevance of the project specifications and references.**
     - **1.2.2 Previous projects not well documented (or information is overlooked), resulting in unforeseen conditions.**
     - **1.2.3 No space in the market that meets Agency's requirements; build-to suits are extremely difficult to approve in this fiscal climate**
     - **1.2.4 Lack of definition in requirements results in substandard product selection***
   - 1.3 Estimates, assumptions, and constraints
     - **1.3.1 Market conditions limit competition, escalating offered pricing**
     - **1.3.2 Overly onerous government regulations and requirements limit competition, escalating offered pricing**
   - 1.4 Technical Processes
   - 1.5 Technology
     - **1.5.1 Rapidly changing technologies result in irrelevant / wasted final construction products**
     - **1.5.2 Installed technologies become obsolete and/or proprietary products no longer supported**
     - **1.5.3 New technology makes it difficult and costly to upgrade or adapt old infrastructure. Often these details are overlooked initially***
   - 1.6 Technical interfaces

1.7 Design
- 1.7.1 Limited design firm availability results in escalated design costs
- 1.7.2 Unique design requirements not fully understood by design firm which results in over-design and increased costs
- 1.7.3 Design and installation works on paper but does not work in installation

1.8 Performance
- 1.8.1 Key design and/or construction personnel and/or firms exit during project execution *
- 1.8.2 Misapplied or misunderstood warranties can lead to costly repairs or services*

1.9 Reliability and maintainability

1.10 Safety

1.11 Security
- 1.11.1 U.S Government security requirements time consuming and costly pushing prices higher

1.12 Test and acceptance
- 1.12.1 All government projects regardless of size and magnitude only incur a 1 year warranty from contractor resulting in costly repairs/replacement for substandard work where problems are found beyond the one year warranty period.

2. Management Risk

2.1 Project Management
- 2.1.1 Schedule not developed from Work Breakdown Structure
- 2.1.2 Planning is too poor to support the desired implementation tempo
- 2.1.3 Project managers making contract related decisions without contracting officer approval
- 2.1.4 Members of the project team unfamiliar with Alaska and rural areas (inexperienced)
- 2.1.5 Changes management process lengthy or poorly planned leads to delays

2.2 Program/Portfolio Management
- 2.2.1 Program priorities change and critical resources are reassigned which make it difficult to meet schedule or quality goals*

2.3 Operations management

2.4 Organization
- 2.4.1 Organization under constant re-structuring changing policies and procedures that can delay procurement and contracting flow. *

2.5 Resourcing
- 2.5.1 Government procurement financial limitations result in piecemeal, inadequate, incomplete and overly expensive projects

2.6 Communication
- 2.6.1 Client/end-user fails to adequately represent their needs during project development.
- 2.6.2 End-user's input ignored during project development *
- 2.6.3 Over-reliance on undocumented and improperly vetted field agreements results in miscommunications and project failures
- 2.6.4 Communication with subs or contractors through organizational processes can be slow and can result in miscommunication*

2.7 Health, safety and environment

2.8 Quality

3. Commercial Risk
   3.1 Contractual terms and conditions
      3.1.1 Project expectations not clearly defined (such as as-built drawing requirements)
      3.1.2 Contractor has the wrong version of the SOW; completed project is incorrect
      3.1.3 Fraud
      3.1.4 Agency local point of contact or onsite point of contact directs contractor to do something outside the SOW (without first notifying the government project manager
      3.1.5 Contract terms unclear or ambiguous resulting in confusion
   3.2 Internal procurement
      3.2.1 Government regulations require and independent government estimate (IGE) be created prior to accepting bids from contractors. When contractors come in with proposals over the IGE a "bid bust" condition occurs causing procurement delays
      3.2.2 Government processes take too long and therefore potential bidders/offerers give up on the process and lease to a private entity instead
      3.2.3 Procurement process inflexible and allow contracts awarded based on cost instead of technical ability or skill*
   3.3 Suppliers and vendors
      3.3.1 Occasionally there are not enough bids/proposals submitted to meet regulatory requirements resulting in procurement delays.
      3.3.2 Exaggerated resumes from potential bidders on projects
      3.3.3 Small business owners or less savvy lessors do not want to deal with government, therefore losing an opportunity for the government to lease suitable space
   3.4 Subcontracts
      3.4.1 On-site subcontract personnel act on communications with government and/or end-user without proper authorization *
      3.4.2 Subcontractor communicate through their chain of command making leading to miscommunication or lengthy response times*
   3.5 Client/customer stability
      3.5.1 Representative of end-user changes, resulting in changed requirements/expectations
      3.5.2 Agency terminates their lease early therefore leaving GSA with vacant space on the books, costing taxpayer dollars
      3.5.3 Other fellow State or City government agencies refuse to sign federal government lease contracts
      3.5.4 Turnover requires unplanned orientation for new representatives or changes in expectations and requirements*
   3.6 Partnerships and joint ventures
4. External Risk
   4.1 Legislation
      4.1.1 Appropriations or Authorization Bills delayed
      4.1.2 "Sequester" funding cuts result in cancelled and/or delayed projects
   4.2 Exchange Rates
   4.3 Site/facilities
   4.4 Environmental/weather
      4.4.1 Severe weather events or fire will delay seasonal projects and require contract extension and schedule rework*

4.5 Competition
- 4.5.1 Limited competition due to remote Alaska location

4.6 Regulatory
- 4.6.1 Product depends on government regulations, which change unexpectedly

4.7 Political
- 4.7.1 Changing priorities associated with an administration change

4.8 Country

4.9 Social/demographic
- 4.9.1 Government mandated award categories for socioeconomic disadvantaged companies (small business, 8a, DAV etc.) limit options for procurement and increase costs by as much as 30%

4.10 Pressure groups

4.11 Force majeure

5. Organizational Risk

5.1 Decision Processes
- 5.1.1 Team members do not buy into the project and consequently do not provide level of performance needed

5.2 Financial
- 5.2.1 Budget cycle not always in line with optimal project timeline*

5.3 Culture
- 5.3.1 Lack of transparency results in projects that are not in taxpayers best interest
- 5.3.2 Leadership focus on "executing the budget" results in wasteful projects/procurements

5.4 Resources
- 5.4.1 Government
- 5.4.2 "Unfunded requirements" and un-resourced regulatory mandates force procurement staffs to take shortcut to keep up with workload. This primarily impacts the "contracting officer" functions

5.5 Organizational structure
- 5.5.1 "Government reinvention" initiatives result in leadership personnel changes and changes in requirements/expectations and/or funding
- 5.5.2 Siloed organizational structure inhibits communication between procurement or administrative departments and technical experts*

Exhibit 4. Consolidated Risk Breakdown Structure

4.1.2 Second Survey: Qualitative Risk Analysis

The risk items identified in the first survey were included in the second survey. The same number of participants were solicited for input into the second survey.

The primary reasons for the second survey were to obtain qualitative probability and impact ratings for each of the risks identified, to collect information on the types of impacts the participants expected the risk would have, such as impacts to the cost, schedule, or quality of the project and its product as well as any risk response strategies and their effect on the risk item.

The first step of the analysis was to consolidate the probability and impact rankings to examine the range of responses and to determine the appropriate ranges to include in each of the three qualitative categories. Bins were

used based on the cumulative percentages, using the first third as low, the middle third as medium, and the top third as high. The ranges of probabilities that fit within those thirds were then used for the qualitative definitions.

Exhibit 5 shows the number of responses and cumulative percentages of the bins used for determining the probability categories. Forty percent of the responses fell within the probability range of 0 to 20 percent, followed by thirty-seven percent of the responses falling in the range from 21 to 50 percent. These two ranges were used for the low and medium categories, respectively. Risks with an average probability of occurrence in excess of 50 percent were classified in the high priority category.

Probability Bin (%)	Count	Cumulative Percentage
0 - 5	4	12
6 - 10	8	38
11 - 15	1	41
16 - 20	-	-
21 - 25	4	53
26 - 30	4	66
31 - 35	-	-
36 - 40	-	-
41 - 45	-	-
46 - 50	4	78
51 - 55	-	-
56 - 60	1	81
61 - 65	-	-
66 - 70	1	84
71 - 75	2	91
76 - 80	1	94
81 - 85	-	-
86 - 90	-	-
91 - 95	-	-
96 - 100	2	100

Exhibit 5. Count and Cumulative Percentage of Probability Bins

Based on the analysis described above, the survey results suggest qualitative probability rankings be defined as shown in Exhibit 6.

Probability of Occurrence	Qualitative Probability Ranking
0 - 20	Low
21 - 50	Medium
51 - 100	High

Exhibit 6. Qualitative Probability Ranking Criteria

Risk impacts were classified in a similar manner to the risk probability classifications. Exhibit 7 shows the number of responses and cumulative percentages of the bins used for determining the impact changes. Thirty-eight percent of the responses fell within the impact range of 0 to 25 percent, and thirty-seven percent fell within the impact range of 26 – 49 percent. Consequently, those two ranges were used for the low and medium categories, respectively. Risks with an average impact in excess of 35 percent were classified in the high impact category.

Based on the analysis described above and depicted in exhibit 7, the survey results suggested that the qualitative impact ratings be defined as shown in Exhibit 8. Finally, the probability and impact rankings were assigned based on the categories presented in Exhibits 6 and 8 and the combined risk ranking was assigned based on the qualitative risk probability and impact matrix depicted in Exhibit 9 (repeated from Exhibit 3).

After reviewing the survey results, it was deemed not feasible to develop different ranges for the impact categories based on the type of impact considered due to the fact that not all of the respondents provided separate percentage changes for each impact type. Consequently, the impact categories were assigned uniformly, regardless of the impact types.

Impact Bin (%)	Count	Cumulative Percentage
0 - 5	3	9
6 - 10	5	25
11 - 15	1	28
16 - 20	1	31
21 - 25	2	38
26 - 30	-	-
31 - 35	-	-
36 - 40	1	41
41 - 45	4	51
46 - 50	1	56
51 - 55	6	76
56 - 60	-	-
61 - 65	4	88
66 - 70	-	-
71 - 75	2	94
76 - 80	-	-
81 - 85	2	100
86 - 90	-	-
91 - 95	-	-
96 - 100	-	-

Exhibit 7. Count and Cumulative Percentage of Impact Bins

Impact of Occurrence	Qualitative Impact Ranking

0 - 25	Low
26 - 50	Medium
51 - 100	High

Exhibit 8. Qualitative Impact Ranking Criteria

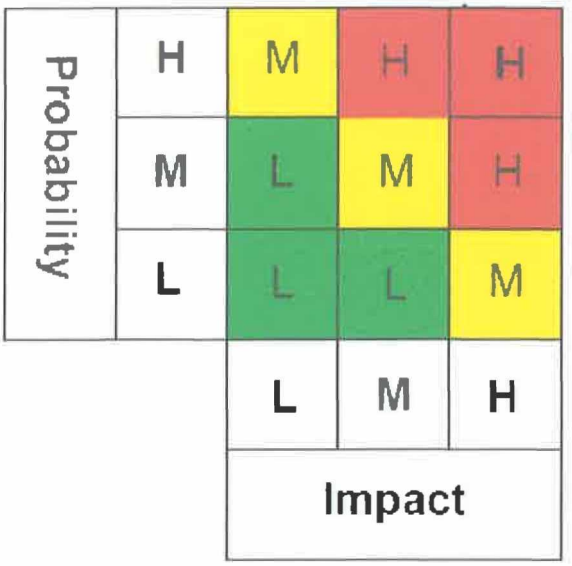

Exhibit 9. Qualitative Risk Probability and Impact Matrix

4.1.3 Second Survey: Risk Response Strategies

There were risk response strategies and post-response probability and impact estimates solicited from the participants as part of the second survey. Where the responses were different for a specific risk item between the agencies, multiple response strategies were placed in the risk register for that item. In each case, the responses were the result of consensus of PMs within the respective agencies, so that only one risk response strategy per risk item was provided. Where the respondents of the agency provided no risk response strategy, that cell was left blank. Respondents did not always provide post-response probability and impact estimates for the risk inputs they provided. Where this was the case, the cells of the spreadsheet were left blank. Consequently, this part of the survey was not subjected to the rigorous analysis that the risk rankings were.

5.0 Risks for Government Contract Projects

This chapter provides an analysis of the risks identified by the participating agencies in terms of the risk categories in the RBS and also discusses the construction of the RBS and risk register. Commonalities and similarities between the participating agencies are addressed in terms of the inputs provided and analysis results generated.

5.1 Government Project Risks

An analysis of the list of risks generated by the first survey provides striking insight into what categories of risks carry the most importance to the participating agencies. Exhibit 10 depicts the risk inputs provided by the participating agencies in terms of the top-level, general categories of risks from the RBS.

Risk Category	GSA Inputs	DNR Inputs	Total Inputs	% of GSA Inputs	% of DNR Inputs	% of Total Inputs
Technical	14	5	19	30	33	31
Management	9	3	12	19	20	20
Commercial	13	4	17	27	27	27
External	6	1	7	13	7	11
Organizational	5	2	7	11	13	11
Total of All Categories	47	15	62	100	100	100

Exhibit 10. Relative Importance of Risk Categories, All Risks

The "Total of all Categories" row in Exhibit 10 reflects the totals down each column, and not across that row. GSA provided the majority of the risk inputs (47/62 = 76%); DNR/PRC provided 24% of the total risk inputs. In spite of this, the percentages of risks inputs per category are fairly consistent between both agencies and in total. Of the risk items consolidated in the final RBS, technical, commercial, and management factors constituted the majority of the risks (78 percent); GSA's percentage for these three categories was 76 percent and DNR/PRC's percentage for these three categories was 80 percent. This is to be expected, as technical risks, when realized, are most often "show stoppers", and the risks identified under the commercial category are characteristic of risks chronically associated with contract administration, and the subcategories of the management category, especially the project management subcategory, reflects the compounded difficulty of managing complex projects through a contractual vehicle.

While the external and organizational risk categories contained the fewest risks identified by the participants, the quality of the risks identified can also "make or break" a project if realized. Among the external risk subcategories, legislation, regulatory, environmental, weather, political and social/demographic risks can and quite often do have adverse impact on projects when realized (PMBOK®, Government Extension, pp.66-67). If organizational culture does not support the implementation of risk management procedures and principles, adverse impacts on the "triple constraint" are inevitable.

The following Exhibits illustrate the risk subcategories for each of the general categories in separate pie charts, making note of the largest of each subcategory. The largest subcategory for technical risks (Exhibit 11) was requirements definition at 22 percent. There were two large subcategories for the management risk general category (Exhibit 12); project management (43 percent) and communication (33 percent).

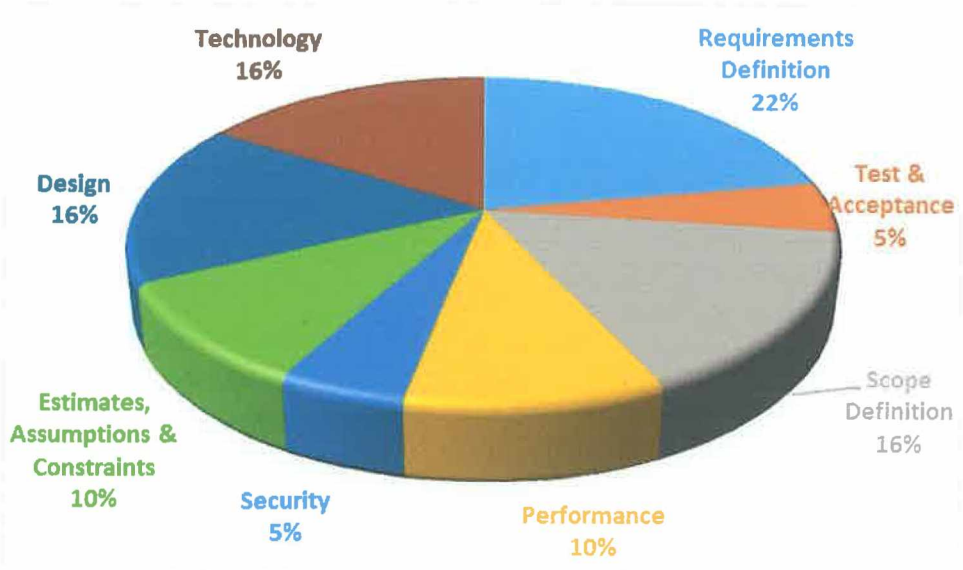

Exhibit 11. Detailed Risk Categories for Technical Risks

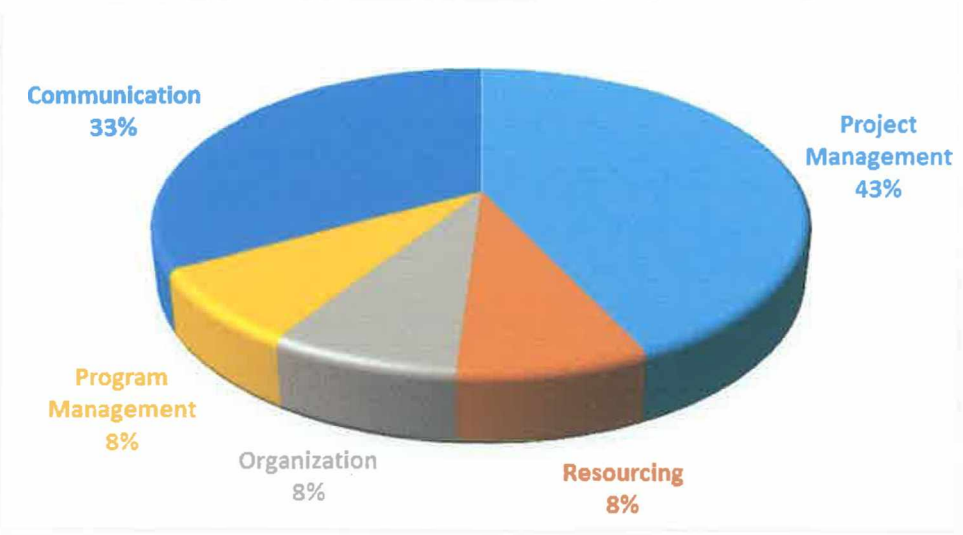

Exhibit 12. Detailed Risk Categories for Management Risks

For the commercial general risk category, the largest subcategory is contract terms and conditions (29 percent) shown below in Exhibit 13. This is consistent with issues related to poorly constructed Statements of Work (SOWs) among other risks associated with poorly administered contracts.

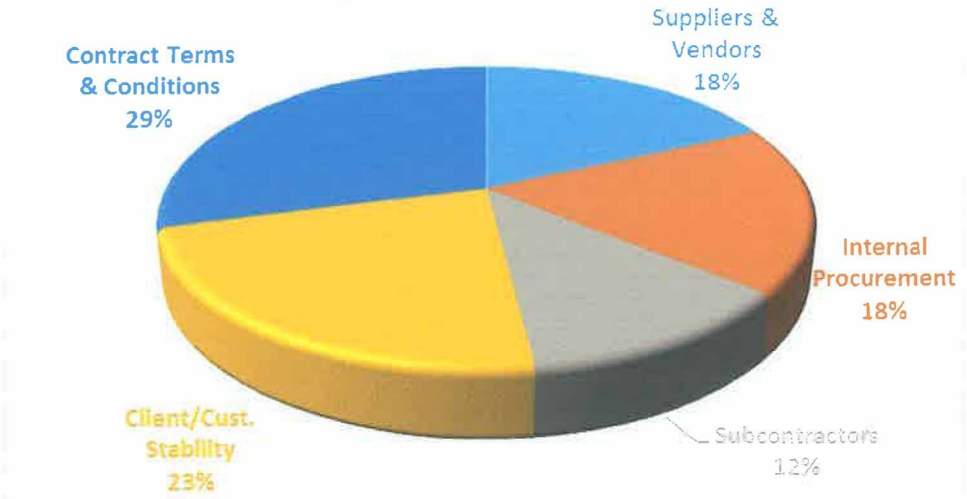

Exhibit 13. Detailed Risk Categories for Commercial Risks

The largest subcategory associated with the external general risk category (Exhibit 14) is legislation at 30 percent. This subcategory along with the regulatory subcategory quite often slows down the project management process by forcing compliance with government laws and regulations.

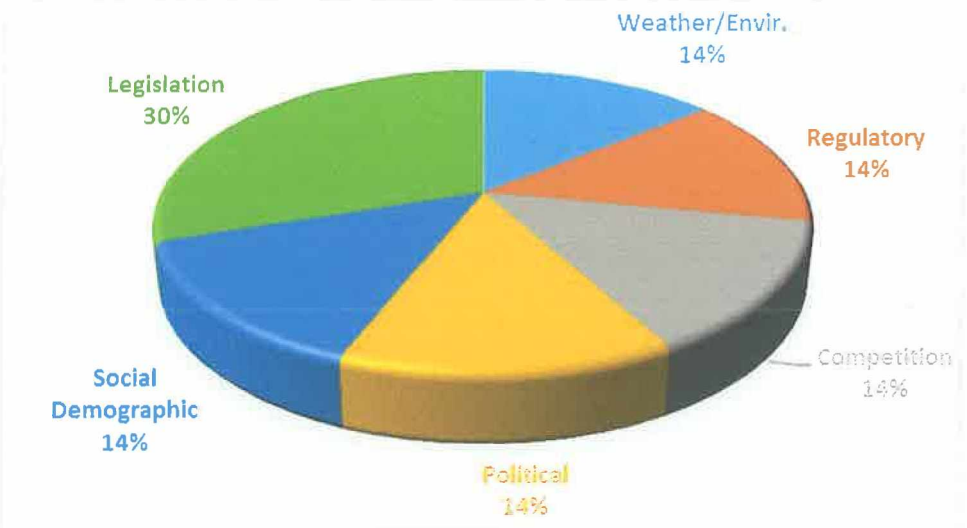

Exhibit 14. Detailed Risk Categories for External Risks

Both organizational culture and resources are large subcategories of the Organizational general risk category (Exhibit 15). As discussed previously, where the organization's culture does not support implementation of risk management principles and processes, "reactionary" risk management is the order of the day, leading to cost and schedule overruns.

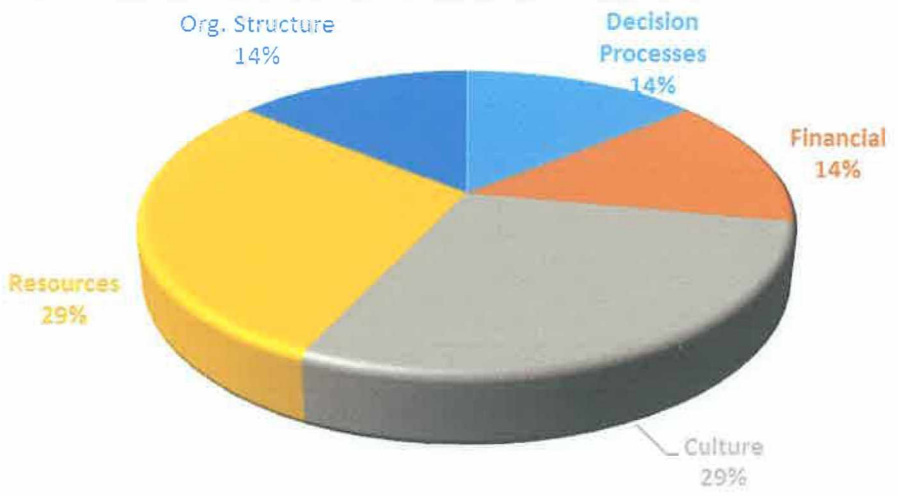

Exhibit 15. Detailed Risk Categories for Organizational Risks

5.1 Risk Breakdown Structure

The use of the sample breakdown structure depicted in Exhibit 3 was chosen as the format for developing the RBS used in this project. The Haugen RBS contained 39 risk categories compared to the 16 risk categories depicted in the DoD Risk Management guide. The entire RBS structure was used to solicit risk responses from the participants. The use of the RBS depicted in the PMBOK® Guide (Project Management Institute, 2013, p. 317) was considered, but it was observed that the illustration shown with the caption of being an RBS was not an RBS at all; PMI misprinted Figure 11-4 captioned as an example of an RBS and instead printed illustrations of the beta and triangular statistical distributions. The final consolidated RBS is depicted in Appendix A; it is the same RBS as depicted in Exhibit 4. The risk items shown in blue are the inputs provided by DNR/PMC and the risk items shown in red are the inputs provided by the GSA. When the consolidated RBS was re-sent with the second survey, both organizations were asked to look over each other's risk inputs and place an asterisk (*) next to the risk inputs they though would be applicable to their organization. DNR/PMC identified five of GSA's risk inputs (11%) as being useful to their organization, whereas GSA identified 12 of the 15 risk inputs (80%) identified by DNR/PMC as being useful to their organization. Of the total risks (64) identified in this manner by both organizations, 27 percent of the inputs (17) are applicable and useful to both organizations.

5.2 Risk Register

The risk register used in the project is based on the one used by Mr. Fisher when he implemented his project on risk management for Alaska Oil and Gas Capital and Digital projects. This format was readily applicable to the objectives of the current project as applied to risks associated with projects managed in the public sector. It was modified to account for the lack of positive risks, as there were no positive risks identified by the project participants. The register includes the following headings for organizing, estimating, and responding to risks:

- RBS Category: This item designates the location of the risk within the risk breakdown structure found in Appendix A
- Risk Item and Description
- Qualitative Ranking (Probability, Impact, and Combined): These items specify the relative importance of the risks and are used to prioritize the risks and arrange them in the risk register.
- Risk Response Strategy

- Post-Response Qualitative Ranking (Probability, Impact, and Combined): These items specify the relative importance of the risks after a risk response strategy has been chosen and applied. Where there was no values provided by the respondents, the cells are left blank.

The completed risk register is shown in Appendix B. Its content is based on the analysis of the first survey data as described in section 4.1. It includes the ranked risks as well as the unranked risks.

According to this analysis of the survey responses, the top risks for government projects accomplished by contract for the participating agencies are shown in Exhibit 16. DNR/PMC provided seven inputs as their priority risks. GSA's top ten are in the register, along with one extra identified by both organizations as pertinent to both agencies. Of the 18 risks depicted, all are negative. Half (9) of the risks are Technical risks, 22 percent (4) are Organizational risks, 11 percent (2) are Commercial risks, and 11 percent (2) are Management risks, and one External risk accounts for 6 percent of the total. All of the risks highlighted in yellow are risks identified by each agency from the other agency's RBS submission from the first survey as pertinent to its own agency; hence the "commonality" is 50 percent among the top risks listed in Exhibit 16 as identified by both agencies. Of the rankings, 11 ranked high (61 percent), 4 ranked medium (22 percent), and 3 ranked low (17 percent). The low ranked risks were produced by an average of the inputs provided by both agencies for those particular risks.

		Qualitative Ranking		
RBS Categories	**Risk Item and Description**	**P**	**I**	**Ranking**
Technical Risks				
Scope Definition	**Reliance on reams of federal and other specifications and references dramatically escalates costs yet does not clearly define scope.**	H	H	H
Scope Definition	**Current facility conditions not fully reviewed - resulting in overlooked deficiencies and increased project costs.**	H	H	H
Requirements Definition	**Lack of definition in requirements results in substandard product selection**	L	L	L
Requirements Definition	**Previous projects not well documented (or information is overlooked), resulting in unforeseen conditions.**	H	M	H
Estimates, Assumptions & Constraints	**Overly onerous government regulations and requirements limit competition, escalating offered pricing**	H	H	H

Estimates, Assumptions & Constraints	Market conditions limit competition, escalating offered pricing	M	M	M
Design	Key design and/or construction personnel and/or firms exit during project execution	M	H	H
Technology	New technology makes it difficult and costly to upgrade or adapt old infrastructure. Often these details are overlooked initially	M	M	M
Performance	Misapplied or misunderstood warranties can lead to costly repairs or services	L	L	L
Organizational Risks				
Financial	Budget cycle not always in line with optimal project timeline	L	L	L
Culture	Leadership focus on "executing the budget" results in wasteful projects/procurements	H	H	H
Culture	Lack of transparency results in projects that are not in taxpayers best interest	H	H	H
Resources	"Unfunded requirements" and un-resourced regulatory mandates force procurement staffs to take shortcut to keep up with workload. This primarily impacts the "contracting officer" functions	H	H	H
Commercial Risks				
Subcontracts	Subcontractor communicate through their chain of command making leading to miscommunication or lengthy response times	H	H	H
Client/customer stability	Turnover requires unplanned orientation for new representatives or changes in expectations and requirements	L	H	M
Management Risks				

Project Management	Changes management process lengthy or poorly planned leads to delays	M	M	M
Communications	End user's needs not adequately considered in project design.	H	H	H
External Risks				
Environment & Weather	Severe weather events or fire will delay seasonal projects and require contract extension and schedule rework	M	H	H

Exhibit 16. Top Risks Identified by the Participating Agencies (Qualitative)

Exhibit 17 below depicts the risk response strategies provided by the survey respondents to address the top risks identified. The post-response rankings were (where applicable) are shown in the complete version of the risk register shown in Appendix B.

RBS Categories	Risk Item and Description	Risk Response Strategies
Technical Risks		
Scope Definition	Reliance on reams of federal and other specifications and references dramatically escalates costs yet does not clearly define scope.	Project Manager thoroughly edits all technical specs, drawings and references to weed out as much useless/redundant/non-applicable info as possible - while ensuring critical info is retained and/or added (often the most basic/critical info ends up missing - largely due to the overload of government minutiae).
Scope Definition	Current facility conditions not fully reviewed - resulting in overlooked deficiencies and increased project costs.	More thorough pre-design orientation with design staff
Requirements Definition	Lack of definition in requirements results in substandard product selection	Ensure clear understanding of customer requirements and desired final outcome of product or service
Requirements Definition	Previous projects not well documented (or information is overlooked), resulting in unforeseen conditions.	This issue can only be addressed by properly staffing records management divisions with properly trained and resourced personnel and systems.
Estimates, Assumptions & Constraints	Overly onerous government regulations and requirements limit competition, escalating offered pricing	Agencies must work to maximize competition by implementing a variety of contracting tools/methods. Unfortunately, government "socio/economic" mandates reward agencies for eliminating competition in favor of "small/disadvantaged" businesses, etc.

Estimates, Assumptions & Constraints	Market conditions limit competition, escalating offered pricing	Advertise project solicitations across the entire nation to ensure the greatest possible competition
Design	Key design and/or construction personnel and/or firms exit during project execution	Maintain thorough project documentation for background
Technology	New technology makes it difficult and costly to upgrade or adapt old infrastructure. Often these details are overlooked initially	Ensure replacement technologies are tested and work properly prior to launch and implementation
Performance	Misapplied or misunderstood warranties can lead to costly repairs or services	Make sure all parties clearly understand contractual conditions of any warranties associated with project
Organizational Risks		
Financial	Budget cycle not always in line with optimal project timeline	Fiscal year and budgets are on set schedule each year. Build project timelines to accommodate.
Culture	Leadership focus on "executing the budget" results in wasteful projects/procurements	Federal government leadership must get real on this issue, as Project Managers have minimal influence when leadership demands "executing the budget" i.e., spending every dime we can get regardless of actual needs and highly inefficient/ineffective project outcomes.
Culture	Lack of transparency results in projects that are not in taxpayers best interest	Government leaders must implement strategies to ensure the public is easily able to learn how their taxes are being used - especially with regard to construction, repair and renovation projects. Offering the media full access to completed project information at least on an annual basis would be a great starting point.
Resources	"Unfunded requirements" and un-resourced regulatory mandates force procurement staffs to take shortcut to keep up with workload. This primarily impacts the "contracting officer" functions	Every person responsible for managing procurement officials should be required to work directly with the contracting staff in executing projects for at least one month per year - so that they can clearly understand the many negative impacts of excessive procurement requirements and staffing shortfalls.
Commercial Risks		
Subcontracts	Subcontractor communicate through their chain of command making leading to miscommunication or lengthy response times	Require change management and communications process
Client/customer stability	Turnover requires unplanned orientation for new representatives or changes in expectations and requirements	Ensure depth in experience and coverage of more than "one deep" so other can pick up the load; Maintain thorough project documentation for background

Management Risks		
Project Management	**Changes management process lengthy or poorly planned leads to delays**	**Require change management and communications process; Risk not likely to occur because GSA has an established and closely monitored change control process.**
Communications	**End user's needs not adequately considered in project design.**	**Implement more frequent design/plan review points by on-site representative**
External Risks		
Environment & Weather	**Severe weather events or fire will delay seasonal projects and require contract extension and schedule rework**	**Prioritize season-critical tasks early**

Exhibit 17. Risk Response Strategies for the Top Risks Identified by the Participating Agencies

6.0 Conclusions

The objective of this project was to identify a common core of risks associated with the managing of government projects by contract. Four of the PMBOK® Guide's (Project Management Institute, 2013) six Project Risk Management processes were used as guidance to determine risk categories, aggregate risk items, determine risk rankings, and response strategies that are generally applicable to government projects managed by contract. The deliverables of the project include this report, an RBS, and a risk register. These items are available to the participating agencies to use in any risk analyses they may undertake.

The survey findings support the original objective of establishing a common core of risks among the participating organizations. The 50 percent commonality among the top risks identified by both organizations was quite an unexpected result. These results, along with the substantial pool of risks and risk response strategies can serve as a foundation for the development of a risk management process for the participating agencies.

6.1 Contributions of the Project

The first and foremost contribution of the project was to promote a greater awareness of the importance of a focused and formal approach to risk identification and management. As discussed earlier in this report, government agencies at all levels must practice risk management commensurate with the depth and complexity of the projects they manage. This project supports this goal by bringing together within each participating organization the wealth of experience and expertise it may not have even been aware existed among its PM personnel. The risk identification methodology also facilitated the establishment of a "baseline" risk "portfolio" (collection of risks applicable to their endeavors) for both participating organizations; a project management asset that existed potentially throughout each participating organization in the experience and expertise of its project managers was rendered actual, tangible, and available for future risk analysis endeavors. The methodology used in this project should be repeated on a periodic basis within each organization to ensure they have a comprehensive a risk portfolio commensurate with their portfolio of projects/programs, as the risk management process is a dynamic, never ending activity.

This project also contributed in its method of soliciting the risk inputs. The process used was essentially a hybrid of the brainstorming and Delphi techniques performed electronically with all of the participants spread out geographically. The initial solicitation of the risk inputs constitutes brainstorming, bringing together the PM expertise of both organizations considered individually according to each agency's mission and objectives. The re-submitting of the consolidated RBS containing both organization's inputs and requesting that they identify those risk inputs among the inputs of the other organization's that can apply to their activities constitutes the Delphi portion of the method in the sense that the participants were not made aware of this until after their individual agency's initial risk items submissions were received by the researcher. This provided the best opportunity to determine the "commonality" among the inputs provided. The result was an enrichment of the GSA's risk portfolio by 23 percent and an increase in DNR/PMC's risk portfolio by 33 percent.

6.2 Suggestions for Future Work

The primary suggestion for future work is to perform the methodology again with as many government agencies (federal, state, and municipal) as possible and continue to consolidate the results. The methodology of this project, extended over the course of a year to a year and a half, would probably produce better results. Also, while there were no interviews performed as part of this project, it probably could have benefitted from interviewing selected agency personnel before and after the risk solicitation process. During the interview process, the researcher could perform "calibration" testing (Hubbard, 2009, pp. 102-106), on selected participants to compare them to the "un-calibrated" participants to determine if the quantity and quality of their inputs are any different.

6.3 Lessons Learned

The survey instructions apparently could have been made clearer so that there was less confusion as to what the respondents were supposed to provide by way of probability, impact, and qualitative rankings. The project could

have benefitted from an earlier start, but attempting to start during the summer months would not produce the results required; it would have been far more difficult to pin participants down during the good weather.

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APPENDICES

Appendix A. Risk Breakdown Structure

RISK BREAKDOWN STRUCTURE

(GSA AND PMC/DNR CONSOLIDATION)

GSA provided the risk inputs indicated in **RED**.

PMC/DNR provided the risk inputs indicated in **BLUE**.

Blue Asterisk: GSA – identified risk that is also applicable to PMC/DNR.
Red Asterisk: PMC/DNR – identified risk that is also applicable to GSA.

6. Technical risk
   - 6.1 Scope Definition
     - **6.1.1 Reliance on reams of federal and other specifications and references dramatically escalates costs yet does not clearly define scope.**
     - **6.1.2 End user's needs not adequately considered in project design.**
     - 6.1.3 **Current facility conditions not fully reviewed - resulting in overlooked deficiencies and increased project costs.** *
   - 6.2 Requirements Definition
     - **6.2.1 Government not able to clarify and/or define the relevance of the project specifications and references.**
     - **6.2.2 Previous projects not well documented (or information is overlooked), resulting in unforeseen conditions.**
     - 6.2.3 **No space in the market that meets Agency's requirements; build-to suits are extremely difficult to approve in this fiscal climate**
     - **6.2.4 Lack of definition in requirements results in substandard product selection***
   - 6.3 Estimates, assumptions, and constraints
     - **6.3.1 Market conditions limit competition, escalating offered pricing**
     - 6.3.2 **Overly onerous government regulations and requirements limit competition, escalating offered pricing**
   - 6.4 Technical Processes
   - 6.5 Technology
     - **6.5.1 Rapidly changing technologies result in irrelevant / wasted final construction products**
     - 6.5.2 **Installed technologies become obsolete and/or proprietary products no longer supported**
     - **6.5.3 New technology makes it difficult and costly to upgrade or adapt old infrastructure. Often these details are overlooked initially***

6.6 Technical interfaces
6.7 Design
6.7.1 Limited design firm availability results in escalated design costs
6.7.2 Unique design requirements not fully understood by design firm which results in over-design and increased costs
6.7.3 Design and installation works on paper but does not work in installation
6.8 Performance
6.8.1 Key design and/or construction personnel and/or firms exit during project execution *
6.8.2 Misapplied or misunderstood warranties can lead to costly repairs or services*
6.9 Reliability and maintainability
6.10 Safety
6.11 Security
6.11.1 U.S Government security requirements time consuming and costly pushing prices higher
6.12 Test and acceptance
6.12.1 All government projects regardless of size and magnitude only incur a 1 year warranty from contractor resulting in costly repairs/replacement for substandard work where problems are found beyond the one year warranty period.

7. Management Risk
7.1 Project Management
7.1.1 Schedule not developed from Work Breakdown Structure
7.1.2 Planning is too poor to support the desired implementation tempo
7.1.3 Project managers making contract related decisions without contracting officer approval
7.1.4 Members of the project team unfamiliar with Alaska and rural areas (inexperienced)
7.1.5 Changes management process lengthy or poorly planned leads to delays*
7.2 Program/Portfolio Management
7.2.1 Program priorities change and critical resources are reassigned which make it difficult to meet schedule or quality goals*
7.3 Operations management
7.4 Organization
7.4.1 Organization under constant re-structuring changing policies and procedures that can delay procurement and contracting flow. *
7.5 Resourcing
7.5.1 Government procurement financial limitations result in piecemeal, inadequate, incomplete and overly expensive projects
7.6 Communication
7.6.1 Client/end-user fails to adequately represent their needs during project development.
7.6.2 End-user's input ignored during project development *
7.6.3 Over-reliance on undocumented and improperly vetted field agreements results in miscommunications and project failures
7.6.4 Communication with subs or contractors through organizational processes can be slow and can result in miscommunication*

7.7 Health, safety and environment

7.8 Quality

8. Commercial Risk
   - 8.1 Contractual terms and conditions
     - **8.1.1 Project expectations not clearly defined (such as as-built drawing requirements)**
     - **8.1.2 Contractor has the wrong version of the SOW; completed project is incorrect**
     - **8.1.3 Fraud**
     - **8.1.4 Agency local point of contact or onsite point of contact directs contractor to do something outside the SOW (without first notifying the government project manager**
     - **8.1.5 Contract terms unclear or ambiguous resulting in confusion**
   - 8.2 Internal procurement
     - **8.2.1 Government regulations require and independent government estimate (IGE) be created prior to accepting bids from contractors. When contractors come in with proposals over the IGE a "bid bust" condition occurs causing procurement delays**
     - **8.2.2 Government processes take too long and therefore potential bidders/offerers give up on the process and lease to a private entity instead**
     - **8.2.3 Procurement process inflexible and allow contracts awarded based on cost instead of technical ability or skill***
   - 8.3 Suppliers and vendors
     - **8.3.1 Occasionally there are not enough bids/proposals submitted to meet regulatory requirements resulting in procurement delays.**
     - **8.3.2 Exaggerated resumes from potential bidders on projects**
     - **8.3.3 Small business owners or less savvy lessors do not want to deal with government, therefore losing an opportunity for the government to lease suitable space**
   - 8.4 Subcontracts
     - **8.4.1 On-site subcontract personnel act on communications with government and/or end-user without proper authorization ***
     - **8.4.2 Subcontractor communicate through their chain of command making leading to miscommunication or lengthy response times***
   - 8.5 Client/customer stability
     - **8.5.1 Representative of end-user changes, resulting in changed requirements/expectations**
     - **8.5.2 Agency terminates their lease early therefore leaving GSA with vacant space on the books, costing taxpayer dollars**
     - **8.5.3 Other fellow State or City government agencies refuse to sign federal government lease contracts**
     - **8.5.4 Turnover requires unplanned orientation for new representatives or changes in expectations and requirements***
   - 8.6 Partnerships and joint ventures
9. External Risk
   - 9.1 Legislation
     - **9.1.1 Appropriations or Authorization Bills delayed**
     - **9.1.2 "Sequester" funding cuts result in cancelled and/or delayed projects**
   - 9.2 Exchange Rates
   - 9.3 Site/facilities
   - 9.4 Environmental/weather

9.5 Severe weather events or fire will delay seasonal projects and require contract extension and schedule rework*

9.6 Competition

9.6.1 Limited competition due to remote Alaska location

9.7 Regulatory

9.7.1 Product depends on government regulations, which change unexpectedly

9.8 Political

9.8.1 Changing priorities associated with an administration change

9.9 Country

9.10 Social/demographic

9.10.1 Government mandated award categories for socioeconomic disadvantaged companies (small business, 8a, DAV etc.) limit options for procurement and increase costs by as much as 30%

9.11 Pressure groups

9.12 Force majeure

10. Organizational Risk

10.1 Decision Processes

10.1.1 Team members do not buy into the project and consequently do not provide level of performance needed

10.2 Financial

10.2.1 Budget cycle not always in line with optimal project timeline*

10.3 Culture

10.3.1 Lack of transparency results in projects that are not in taxpayers best interest

10.3.2 Leadership focus on "executing the budget" results in wasteful projects/procurements

10.4 Resources

10.4.1 Government

10.4.2 "Unfunded requirements" and un-resourced regulatory mandates force procurement staffs to take shortcut to keep up with workload. This primarily impacts the "contracting officer" functions

10.5 Organizational structure

10.5.1 **"Government reinvention" initiatives result in leadership personnel changes and changes in requirements/expectations and/or funding**

10.5.2 **Siloed organizational structure inhibits communication between procurement or administrative departments and technical experts***

Appendix B. Risk Register

TOP RISKS

RBS Categories	Risk Item and Description	Qualitative Ranking P	I	Ranking	Risk Response Strategies	Post-Response Qualitative Ranking P	I	P*I
Technical Risks								
Scope Definition	Reliance on reams of federal and other specifications and references dramatically escalates costs yet does not clearly define scope.	H	H	H	Project Manager thouroughly edits all technical specs, drawings and references to weed out as much useless/redundant/non-applicable info as possible - while ensuring critical info is retained and/or added (often the most basic/critical info ends up missing - largely due to the overload of government minutiael.	H	-	-
Scope Definition	Current facility conditions not fully reviewed - resulting in overlooked deficiencies and increased project costs.	H	H	H	More thorough pre-design orientation with design staff	H	H	H
Requirements Definition	Lack of definition in requirements results in substandard product selection	L	L	L	Ensure clear understanding of customer requirements and desired final outcome of product or service	L	L	L
Requirements Definition	Previous projects not well documented (or information is overlooked), resulting in unforeseen conditions.	H	M	H	This issue can only be addressed by properly staffing records management divisions with properly trained and resourced personnel and systems.	M	M	M
Estimates, Assumptions & Constraints	Overly onerous government regulations and requirements limit competition, escalating offered pricing	H	H	H	Agencies must work to maximize competition by implementing a variety of contracting tools/methods. Unfortunately, government "socio/econimic" mandates reward agencies for eliminating competion in favor of "small/disadvantaged" businesses, etc.	M	M	M
Estimates, Assumptions & Constraints	Market conditions limit competition, escalating offered pricing	M	M	M	Advertise project solicitations across the entire nation to ensure the greatest possible competition	L	L	L
Performance	Key design and/or construction personnel and/or firms exit during project execution	M	H	H	Maintain thorough project documentation for background	L	H	M
Technology	New technology makes it difficult and costly to upgrade or adapt old infrastructure. Often these details are overlooked initially	M	M	M	Ensure replacement technologies are tested and work properly prior to launch and implementation	L	L	L
Performance	Misapplied or misunderstood warranties can lead to costly repairs or services	L	L	L	Make sure all parties clearly understand contracual conditions of any warranties associated with project	L	L	L
Organizational Risks								
Financial	Budget cycle not always in line with optimal project timeline	L	L	L	Fiscal year and budgets are on set schedule each year. Build project timelines to accomodate.	L	L	L

Culture	Leadership focus on "executing the budget" results in wasteful projects/procurements	H	H	H	Federal government leadership must get real on this issue, as Project Managers have minimal influence when leadership demands "executing the budget" i.e., spending every dime we can get regardless of actual needs and highly inefficient/innefective project outcomes.	H	H	H
Culture	Lack of transparency results in projects that are not in taxpagers best interest	H	H	H	Government leaders must implement strategies to ensure the public is easily able to learn how their taxes are being used - especially with regard to construction, repair and renovation projects. Offering the media full access to completed project information at least on an annual basis would be a great starting point.	L	L	L
Resources	"Unfunded requirements" and un-resourced regulatorg mandates force procurement staffs to take shortcut to keep up with workload. This primarily impacts the "contracting officer" functions	H	H	H	Every person responsible for managing procurement officials should be required to work directly with the contracting staff in executing projects for at least one month per year - so that thay can clearly understand the many negative impacts of excessive procurement requirements and stafffing shortfalls.	M	M	M
Commercial Risks								
Subcontracts	Subcontractor communicate through their chain of command making leading to miscommunication or lengthy response times	H	H	H	Require change management and communications process	H	L	M
Client/customer stability	Turnover requires unplanned orientation for new representatives or changes in expectations and requirements	L	H	M	Ensure depth in expericne and covergae of more than "one deep" so other can pick up the load; Maintain thorough project documentation for background	L	L	L
Management Risks								
Project Management	Changes management process lengthy or poorly planned leads to delays	M	M	M	Require change management and communicatoins process; Risk not likely to occur because GSA has an established and closely monitored change control process.	M	M	M
Communications	End user's needs not adequately considered in project design.	H	H	H	Implement more frequent design/plan review points by on-site representative	L	H	M
External Risks								
Environment & Weather	projects and require contract extension and schedule rework	M	H	H	Prioritize season-critical tasks early	L	H	M

ADDITIONAL RISKS

RBS Categories	Risk Item and Description
Scope Definition	End user's needs not adequately considered in project design
Requirements Definiton	No space in the market that meets Agency's requirements; build-to suits are extremely difficult to approve in this fiscal climate
Technology	Rapidly changing technologies result in irrelevant / wasted final construction products
Technology	Installed technologies become obsolete and/or proprietary products no longer supported
Design	Limited design firm availability results in escalated design costs
Design	Unique design requirements not fully understood by design firm which results in over-design and increased
Design	Design and installation works on paper but does not work in installation
Performance	Misapplied or misunderstood warranties can lead to costly repairs or services
Security	U.S Government security requirements time consuming and costly pushing prices higher
Test and Acceptance	All government projects regardless of size and magnitude only incur a 1 year warranty from contractor resulting in costly repairs/replacement for substandard work where problems are found begond the one year
Project	Schedule not developed from Work Breakdown
Project Management	Planning is too poor to support the desired implementation tempo
Project Management	Project managers making contract related decisions without contracting officer approval
Project Management	Members of the project team unfamiliar with Alaska and rural areas (inexperienced)
Program/Portfolio Management	Program priorities change and critical resources are reassigned which make it difficult to meet schedule or quality goals
Organization	Organization under constant re-structuring changing policies and procedures that can delay procurement and contracting flow
Resourcing	Government procurement financial limitations result in piecemeal, inadequate, incomplete and overly expensive projects
Communication	Client/end-user fails to adequately represent their needs during project development

Communication	Over-reliance on undocumented and improperly vetted field agreements results in miscommunications and project failures
Communication	Communication with subs or contractors through organizational processes can be slow and can result in miscommunication
Contractual terms and conditions	Project expectations not clearly defined (such as as-built drawing requirements)
Contractual terms and conditions	Contractor has the wrong version of the SOW; completed project is incorrect
Contractual terms and conditions	Fraud
Contractual terms and conditions	Agency local point of contact or onsite point of contact directs contractor to do something outside the SOW (without first notifying the government project manager
Contractual terms and conditions	Contract terms unclear or ambiguous resulting in confusion
Internal Procurement	Government regulations require and independent government estimate (IGE) be created prior to accepting bids from contractors. When contractors come in with proposals over the IGE a "bid bust" condition occurs causing procurement delays
Internal Procurement	Government processes take too long and therefore potential bidders/offerers give up on the process and lease to a private entity instead
Internal Procurement	awarded based on cost instead of technical ability or skill
Suppliers and Vendors	Occasionally there are not enough bids/proposals submitted to meet regulatory requirements resulting in procurement delays
Suppliers and Vendors	Exaggerated resumes from potential bidders on projects
Suppliers and Vendors	Small business owners or less savvy lessors do not want to deal with government, therefore losing an opportunity for the government to lease suitable space
Subcontracts	On-site subcontract personnel act on communications with government and/or end-user without proper
Client/Customer Stability	Representative of end-user changes, resulting in changed requirements/expectations
Client/Customer Stability	Agency terminates their lease early therefore leaving GSA with vacant space on the books, costing taxpayer
Client/Customer Stability	Other fellow State or City government agencies refuse to sign federal government lease contracts
Legislation	Appropriations or Authorization Bills delayed
Legislation	"Sequester" funding cuts result in cancelled and/or delayed projects
Competition	Limited competition due to remote Alaska location

Regulatory	Product depends on government regulations, which change unexpectedly
Political	Changing priorities associated with an administration change
Social/Demographic	Government mandated award categories for socioeconomic disadvantaged companies (small business, 8a, DAV etc.) limit options for procurement and increase costs by as much as 30%
Decision Processes	Team members do not buy into the project and consequently do not provide level of performance
Organizational Structure	"Government reinvention" initiatives result in leadership personnel changes and changes in requirements/expectations and/or funding
Organizational Structure	Siloed organizational structure inhibits communication between procurement or administrative departments and technical experts

The risk register depicted above contains the risks ranked by the participating angncies ("Top Risks") as well as the remaining risks ("Additional Risks") identified by the participating agencies as depicted in the final RBS in Appendix A. A copy of this report, along with a copy of the final RBS and risk register were provided to the points of contact of the participating agencies on 21 Nov 2014. As previously noted, the risks depicted above highlighted highlighted in yellow are the risks both organizations identified as being mutually applicable to both their organizations.

Appendix C. Project Plan

The pdf file below contains the final version of the project management plan. A separate electronic version will be placed in a zip file and on the project CD to be submitted to the ESPM department along with a hard copy for the project binder.

August Banks_PM 686 -Project Management Plan _Final Version - 8 December 2014.pdf

Appendix D. Survey Instruments

D.1 First Survey

First Survey: Risk identification and categorization

The first survey requests positive and negative risk items common to government projects accomplished via contracts. A draft Risk Breakdown structure (RBS) will be used to place the identified risks into appropriate categories and it will contain sample risks for some of the categories. The target audience will also be asked to review the RBS for completeness and comprehensiveness of categories.

The body of the email notification text will be as follows (transmission date: (2 September 2014)):

"I'm in the process of completing my Master of Science in Project Management this spring and the goal of my research is to develop a risk breakdown structure and a risk register to cover a common core of risks associated with managing government projects via contract.

To accomplish this work, I'm requesting your participation in two surveys; the first survey (this one) has as its objective the development of a Risk Breakdown Structure (RBS) and a list of risks common to managing government projects via contract. The second survey will request some qualitative rankings and risk response strategies for each of the risks provided from the first survey.

In order to complete this work prior to the end of the fall semester, responses to the first survey should be returned to me by 5pm on September 12th, 2014. Your participation is strictly voluntary and no direct benefit is provided to you for participating in this data collection process. Your consent is assumed upon return of the completed RBS to me by the above date. You may also opt-out of participation at any time once you've started.

Thank you in advance for any responses you provide. Please convey any questions you have through your organization's POC.

Very respectfully,

August Banks

arbanksjr@alaska.edu"

The body of the survey text will be as follows:

"Drawing on your professional experience, please develop a list of risks common to managing government projects via contract, based on the draft Risk Breakdown Structure (RBS) provided. The draft RBS contains some sample risks (shown in red). If you could provide as many risks for any category (or multiple categories) in the draft RBS, it would be much appreciated.

Please consider both positive and negative risks; opportunities as well as setbacks.

Also keep in mind the RBS is a draft. If you feel another category needs to be added to classify the risks you've identified, please add it.

Please send your list of risks to your organizational POC by 5pm on September 12th, 2014."

D.2 Second Survey

Second Survey: Qualitative Risk Analysis

One of the reasons for the second survey is to solicit quantitative probability and impact rankings for each of the risks identified in the first survey. It will also collect information on the types of impacts the respondents expected the risk would have, such as impacts to the cost, schedule, or quality of the project and its product.

The first step of the analysis is to consolidate the probability and impact rankings to examine the range of responses and determine the appropriate ranges to include in each of the three qualitative categories. After looking at the data, the probability bins will be based on the cumulative percentages, using the first third of the responses as Low, the middle third as Medium, and the top

third as High. The ranges of probabilities that fit within those thirds will be used for the qualitative definitions.

The qualitative categories will be used in the risk register to determine the relative

Importance of each risk item and to serve as a basis for application of the risk register to an actual project.

The body of the notification text for the second survey will be as follows (transmission date: (22 September 2014)):

"I'm in the process of completing my Master of Science in Project Management this spring and the goal of my research is to develop a risk breakdown structure and a risk register to cover a common core of risks associated with managing government projects via contract.

My first survey requested a list of risks common to government projects managed via contract and any modifications to the draft Risk Breakdown Structure (RBS) deemed appropriate. Let me convey my deepest gratitude to those who submitted inputs.

The risks identified from the first survey were aggregated into a risk register. At this time, I would like to elicit your help in developing quantitative probability and impact estimates for each of the risks, risk response strategies for some of the risks, and estimates for each of the mitigated risks.

You will find an Excel spreadsheet with a risk register attached and instructions included in the spreadsheet. Please enter your responses in the spreadsheet and send it back to your organizational POC by 5 pm on 3 October 2014. Your participation is strictly voluntary and no direct benefit is provided to you for participating in this data collection process. Your consent is assumed upon return of the completed risk register to me by the above date. You may also opt-out of participation at any time once you've started.

Thank you in advance for your support. Please forward any questions you have to your organizational POC.

Very respectfully,

August Banks

arbanksjr@alaska.edu"

The survey text for the second survey will be included in the Excel spreadsheet on the very first sheet:

"This spreadsheet contains XX risks that are common to government projects managed via contract. Please review the risks, and to the extent possible, provide quantitative probability and impact estimates for each risk in terms of the percent probability the risk will occur and the percent impact

relative to the baseline. Please also specify the type(s) of impact you expect the risks to have in terms of schedule or cost.

After ranking the risks, please select a few of them (perhaps three to five) and consider the risk responses you would implement and enter those in the appropriate area of the risk register. After entering the mitigation strategy, please provide quantitative probabilities for the mitigated risk.

I really appreciate your taking the time to provide these rankings and strategies. The following is an example risk, with its associated quantitative estimates, a possible risk response, and the mitigated quantitative estimates.

EXAMPLE:

Risk: It rains, your school folders get wet, and you have to replace some of them.

Probability: 50%

Impact: +40% in cost (cost will increase 40% over what you paid for all of the folders initially (the baseline cost))

A possible Risk Response strategy: Take an umbrella to block the rain.

Mitigated Probability: 50% (there's still the same chance of rain)

Impact: +5% (i.e., the umbrella doesn't block all of the rain, so only five percent of your folders get wet, increasing the cost 5% from the baseline.

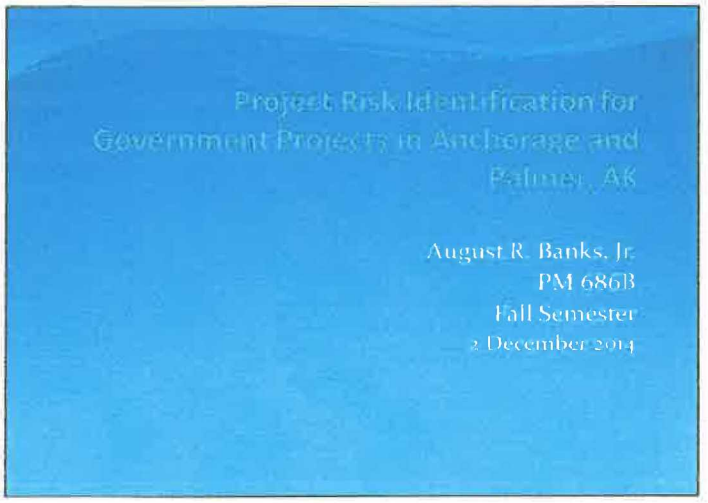
When you've completed the register, please send it via email to your organizational POC by 5 pm 3 October 2014. Any questions you have should also be forwarded to your organizational POC who will in turn forward them to me. Again, I thank you all in advance for your support.

Very respectfully,

August Banks

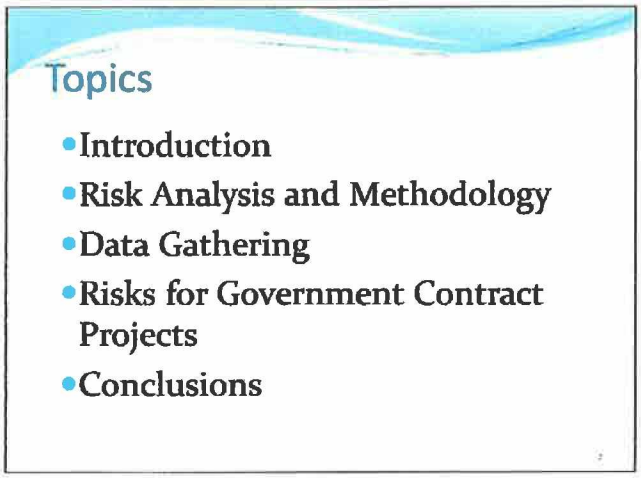
arbanksjr@alaska.edu"

Appendix E. Presentation



Good morning ladies and gentlemen. My name is August Banks and my capstone project is entitled "Project Risk Identification for Government Projects in Anchorage and Palmer, AK".

1

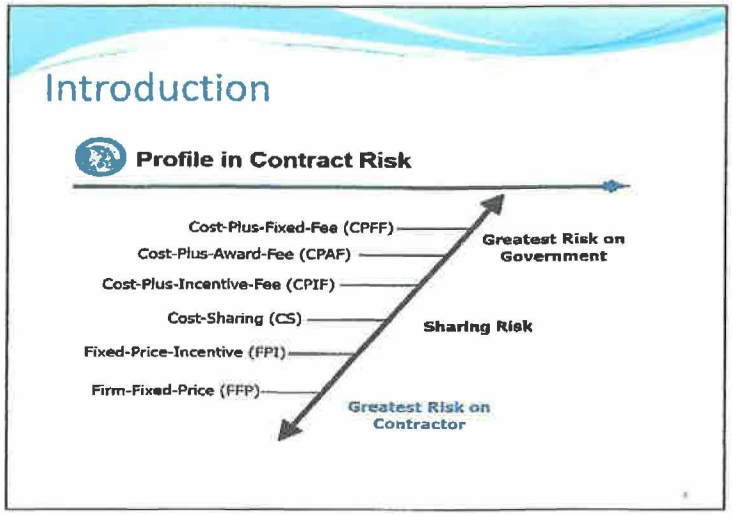


These are the topics to be covered during this presentation. An introduction containing a brief description of the project objectives and project focus will be followed by descriptions of the risk analysis and methodology used in the project, the method used to gather the data for the project, the risks identified, and the conclusions and recommendations.

2

The objectives of this project were to identify and consolidate a common core of risks associated with managing government projects via contracts. The primary stakeholder focus was the government program and project managers associated with the General Services Administration and the Plant Materials Center of the Alaska Department of Natural Resources located in Anchorage and Palmer, respectively. These participating agencies were provided the final project deliverables consisting of a risk breakdown structure (RBS) and a Risk register to be used as a checklist to identify risks associated with any of their future projects. The following graphic serves as an illustration emphasizing the need for vigilant risk management for government projects accomplished by contract.

3

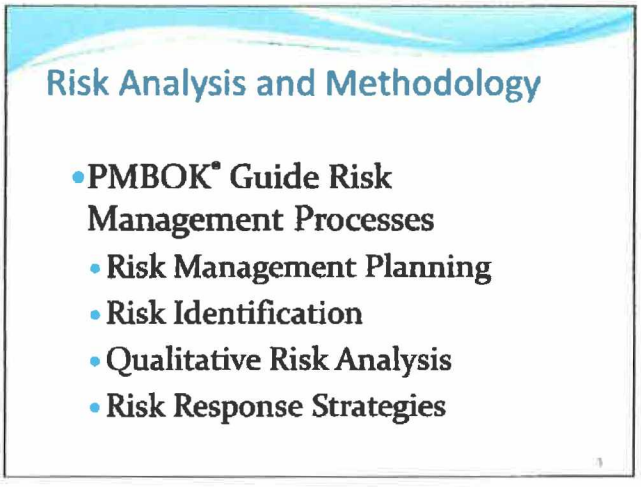


The sharing of and responsibility for risk experienced on a project/program is related to the contract type between the government and prime contractor (or prime contractor and subcontractor). In general, cost-type contracts (e.g., Cost plus fixed fee) place more risk on the government (buyer) than the prime contractor (seller), whereas the reverse is true for fixed-price contracts (e.g., firm-fixed price). There are gradations between these two extremes depending upon which specific type of contract is used; this is clearly illustrated in the present slide. The guidance illustrated here is applicable to many, but certainly not all programs/projects, and it is imprudent if not dangerous to accept and/or apply it indiscriminately.

To illustrate, if the prime contractor performs poorly on a cost-type contract, this may jeopardize its position for future procurements. Similarly, the government is not absolved of risk when it uses a fixed-price contract. If the contractor performs poorly, the government may not receive the promised item on time, or the contractor may not meet necessary performance specifications. When there are no close substitutes, the government may be stuck without any desirable, if not viable, options.

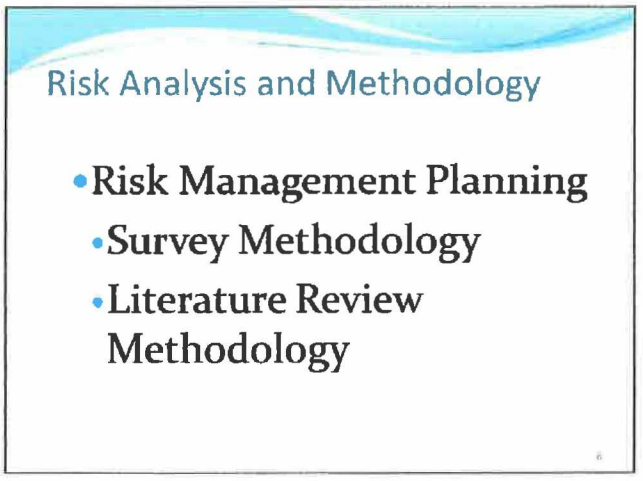
Consequently, regardless of the contract type used, both the government (buyer) and the prime contractor (seller) should generally have an effective risk management process implemented and used continuously. Neither the government nor the prime contractor (seller) is absolved from having an effective risk management process in place because neither party will ordinarily face zero risk on most projects/programs. Failure to do this can lead to substantial adverse impacts, regardless of the contract type used.

The example presented here serves as the foundation for the objectives of this project. The risks identified by the participating agencies were consolidated and analyzed with the intent of aiding them in any future risk analyses they may perform on future projects. The analysis and methodology used in the project will now be presented.



The PMBOK® Guide (Project Management Institute (PMI), 2013) and its government extension (PMI, 2006) are the sources for Project Risk Management processes used in this project. The PMBOK® is a globally recognized standard which readily facilitates the development of the RBS and risk register for this project and allows those deliverables to be effectively utilized by project managers trained in the PMI project management methodology. These guides define risk as "an uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives", and the content of the guide's risk management processes are consistent with this definition. Of the six processes delineated in the guide, four were used in this project: 1) Plan risk management, 2) Identify risks, 3) Perform qualitative analysis, and 4) Plan risk responses. Each one of these will be presented as they relate to this project

5



Risk Management Planning is "the process of defining how to conduct risk management activities for a project." (PMBOK®, 2013, p.313). The activities associated with this process must be tailored to individual organizations and projects. This project focuses on the development of a general RBS to be used to organize risks common to government projects accomplished by contract. The RBS can be used early in the Risk Management Planning process as a tool for brainstorming and categorizing risks. The hierarchical structure allows for increasing levels of detail in the identification and categorization process. An alternative to the RBS is to simply develop a list of risk items. However, the value of using the RBS lies in its ability to encompass categories of risks external to the organization or agency as well as categories of technical risk that may affect the project's outcome. The findings of literature reviews were used to identify risk categories to include in the RBS template used in this project.

The first survey used in this project was used to identify risks as well as to expand upon the categories of the initial RBS template obtained as a result of literature reviews. The survey requested inputs for both positive and negative risk items as well as any additions or changes to the risk categories listed in the RBS template submitted with the survey.

The literature reviews performed for this project served as the primary source for the RBS template used in the project, as well as the source for risk categories associated with government projects accomplished by contract. Books used as texts in the MSPM program were also consulted.

The method used to identify risks in this project is presented next.

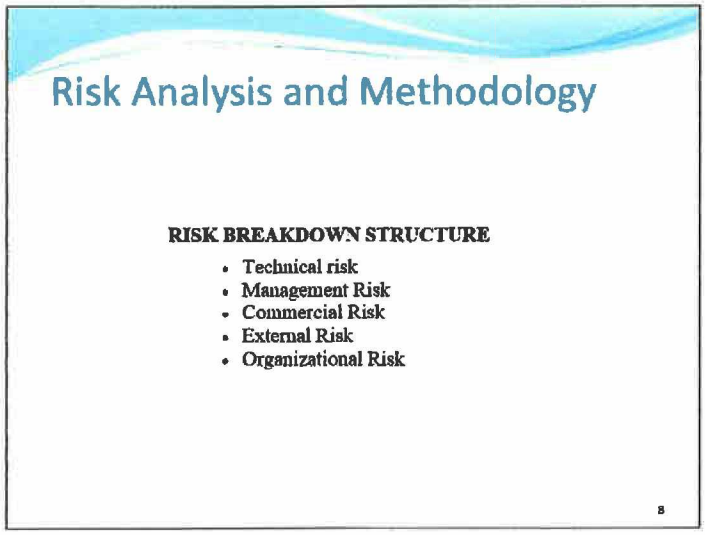
6

"Identify risks is the process of determining which risks may affect the project and documenting their characteristics. The key benefit of this process is the documentation of existing risks and the knowledge and ability it produces to the project team to anticipate events...
...Identify risks is an iterative process, because new risks may evolve or become known as the project progresses through its life cycle." (PMBOK®, 2013, pp. 319-321). This project used a survey and literature searches for the Risk Identification process.

A survey was used in this project to identify risk items. The survey utilized an RBS template obtained through literature searches and was transmitted via e-mail to project/program managers of the participating organizations; the General Services Administration (GSA) and the Plant Materials Center of the Alaska Department of Natural Resources (DNR/PMC). Survey respondents were asked to populate the categories in the RBS template with risks associated with managing government projects via contract. They were also asked to provide positive as well as negative risks as well as provide any changes or additions to the risk categories of the RBS as they deemed appropriate.

The Literature search for this project was also used to identify sources of risks as pertains to government projects accomplished by contract. Among the sources reviewed, the RBS template depicted in the next slide was chosen. This RBS had the largest number of risk categories

7



Among the literature sources reviewed, the RBS template depicted in this slide was chosen. This RBS had the largest number of risk categories, with the five broad categories shown here. They were broken down into 42 subcategories. This was the template used to elicit risks from the project participants. The methodology used in the qualitative risk analysis will now be presented.

8

"Perform Qualitative Risk Analysis is the process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact. The key benefit of this process is that it enables project managers to reduce the level of uncertainty and to focus on high-priority risks." (PMI, 2013, p. 328).

A second survey was distributed to the project participants in order to solicit the qualitative ranking of the set of risks collected from the first survey.

Separate rankings for the probability and impact of risks are included in the qualitative rankings. Although probability refers to the likelihood that a given event will occur and is usually expressed as a range of percentages, for the purposes of this project, three qualitative categories of probability were used: low, medium, and high. Analysis of the results of the second survey were used to determine these categories rather than directly presenting the categories to the survey respondents to use in order to avoid survey bias.

Risk impact refers to the consequence(s) of the risk(s) actually occurring. Realized risks can impact the cost, scope, schedule, or quality of a project in a variety of ways. In a qualitative analysis the impacts are expressed in ranges. As with the probability rankings, this project uses three qualitative categories for project impact based on responses to the second survey: low, medium, and high.

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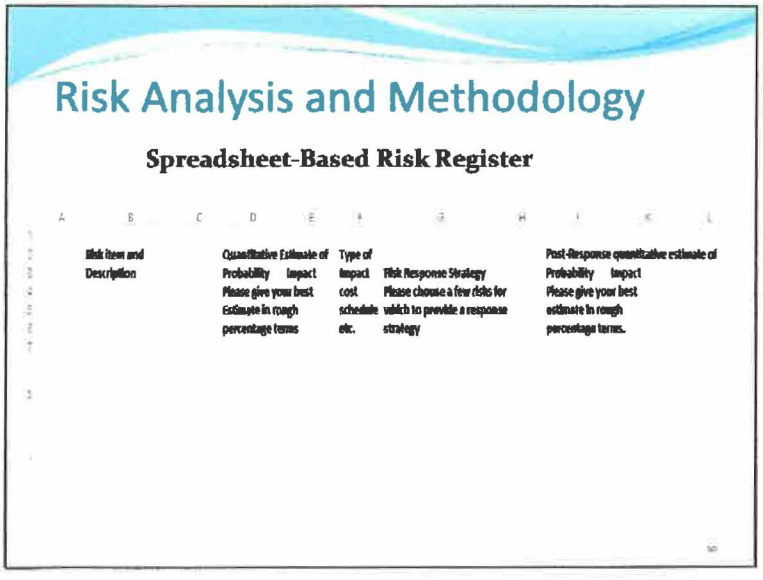
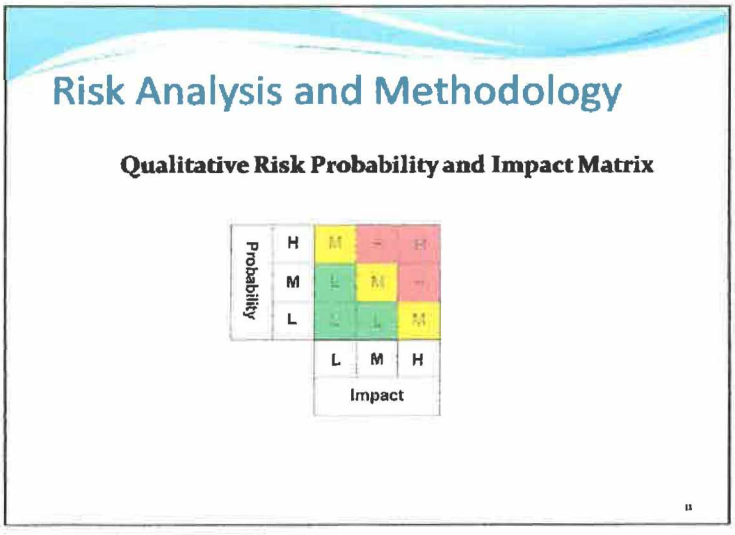


A spreadsheet-based risk register was used in the second survey that was distributed to the participating agencies in order to assess the importance of each of the types of risks identified during the Risk Identification process. The participants were asked to provide a qualitative ranking for each risk and a category of impact, such as cost or schedule. The rankings were then analyzed in order to develop the ranges for the high, medium, and low qualitative categories using the generalized qualitative Risk Probability and Impact matrix depicted in the next slide.

10



The generalized qualitative Risk Probability and Impact matrix shown in this slide was used to prioritize the risks, based on the three categories (high, medium, and low) for risk probability and impact.

The qualitative probability and impact classifications used for this project are intentionally simple. The objective is to identify the risks and give them a relative priority, so that each participating agency can determine how to integrate each applicable risk into the "risk portfolio" of the agency's specific projects or its risk management process.

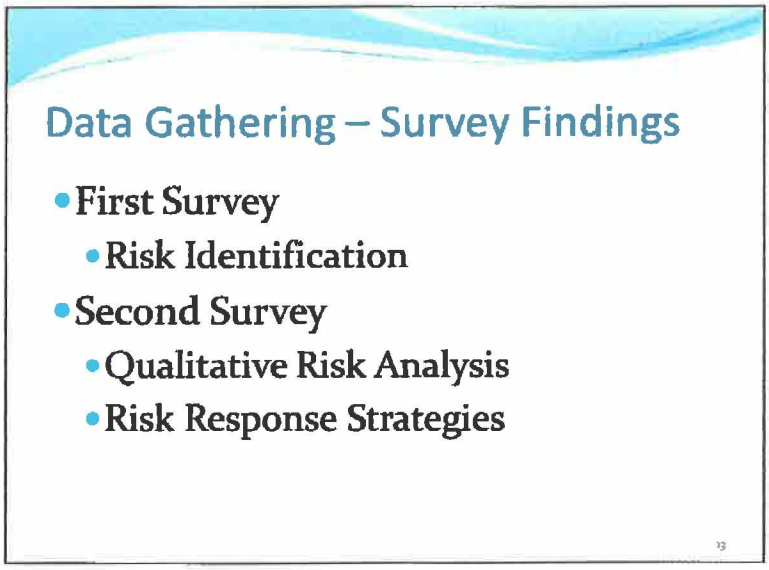
Project risk response strategies will now be addressed as related to the project.

"Plan Risk Responses is the process of developing options and actions to enhance opportunities and to reduce threats to project objectives. The key benefit of this process is that it addresses the risks by their priority, inserting resources and activities into the budget, schedule, and project management plan as needed." (PMBOK®, 2013, p.342).

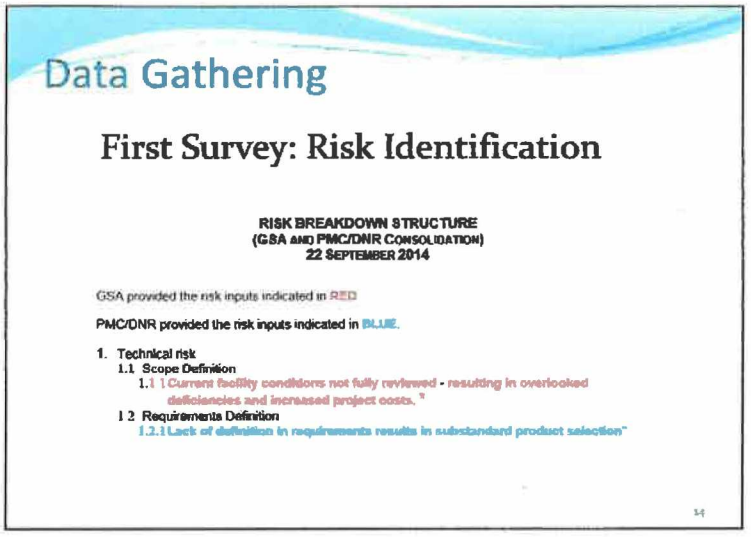
This project used a second survey to solicit both risk response strategies for each item identified in the first survey and the post-response qualitative probability and impact ratings. The participants were asked to fill in a few of the blank cells in the spreadsheet-based risk register pertaining to the possible risk response strategies and the mitigated qualitative rankings resulting from the strategy. These were later incorporated into the final version of the risk register provided to the participating agencies.

We now present the method used to gather the data for the project.

12

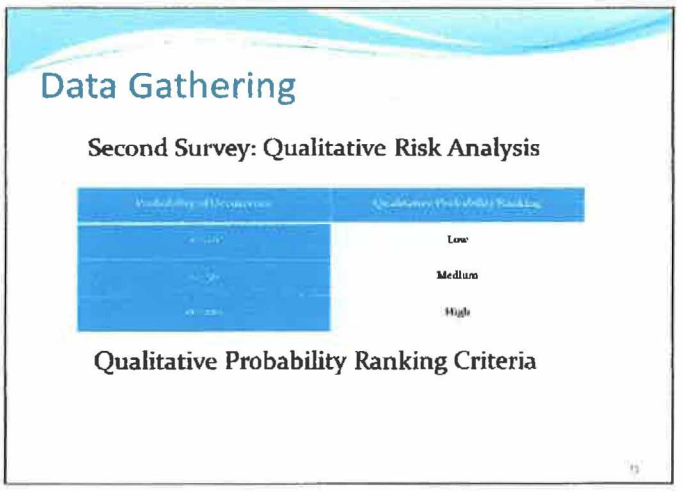


The first survey was sent to the organizational points of contact of the participating agencies for distribution to those individuals they determined could participate in the survey. Eight participants from the GSA and four from DNR/PMC for a total of 12 participants contributed to the project. A total of 62 risks were identified by the respondents. Only negative risks were identified. None of the participants added or changed any of the risk categories in the RBS. An excerpt from the consolidated RBS depicting the consolidation of the risks identified by both agencies is shown in the next slide.



After the consolidation of the risks identified in the first survey, the RBS was re-submitted with the second survey, and each organization was requested to indicate with an asterisk which, if any, risk inputs identified by the other organization would be applicable to their agency. This is depicted in the RBS excerpt by asterisks of the opposite color of the risks indicated.

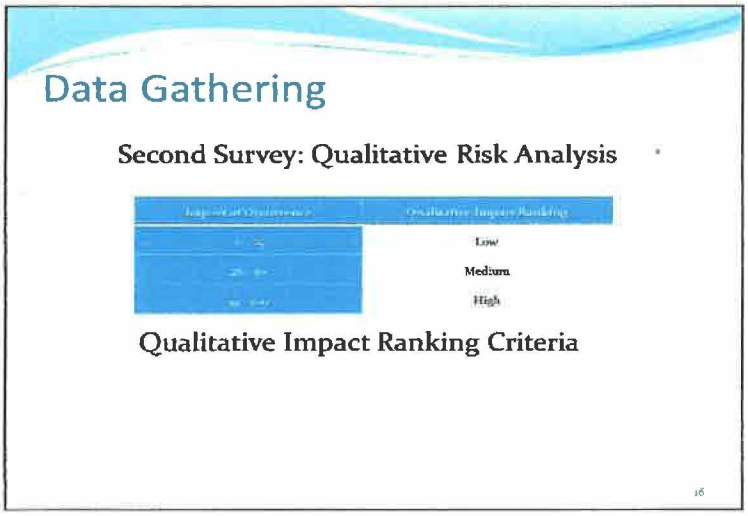
14



The same number of participants were solicited for input into the second survey. The primary reasons for the second survey were to obtain qualitative probability and impact ratings for each of the risks identified, to collect information on the types of impacts the participants expected the risk would have, as well as any risk response strategies and their effect on the risk item.

The qualitative probability ranking criteria are shown in this slide. Forty percent of the responses fell within the probability range of 0 to 20 percent, followed by thirty-seven percent of the responses falling in the range from 21 to 50 percent. These two ranges were used for the low and medium categories, respectively. Risks with an average probability of occurrence in excess of 50 percent were classified in the high priority category.

15



Risk impacts were classified in a similar manner to the risk probability classifications. Thirty-eight percent of the responses fell within the impact range of 0 to 25 percent, and thirty-seven percent fell within the impact range of 26 – 49 percent. Consequently, those two ranges were used for the low and medium categories, respectively. Risks with an average impact in excess of 50 percent were classified in the high impact category.

The risk response strategies and post-response probability and impact estimates solicited from the participants as part of the second survey were the result of consensus of PMs within the respective agencies, so that only one risk response strategy per risk item was provided. Where the respondents of the agency provided no risk response strategy, that cell in the risk register spreadsheet was left blank.

The risk items identified as well as the contents of the final risk register will now be presented.

16

As stated previously, from the RBS developed for this project, the risks associated with managing government projects via contract were consolidated by categories and the percentages of each category were determined. These percentages are depicted in the following slide. Also, an excerpt from the final version of the risk register will be presented and comments made concerning its content. We start first with the risks as identified in the RBS.

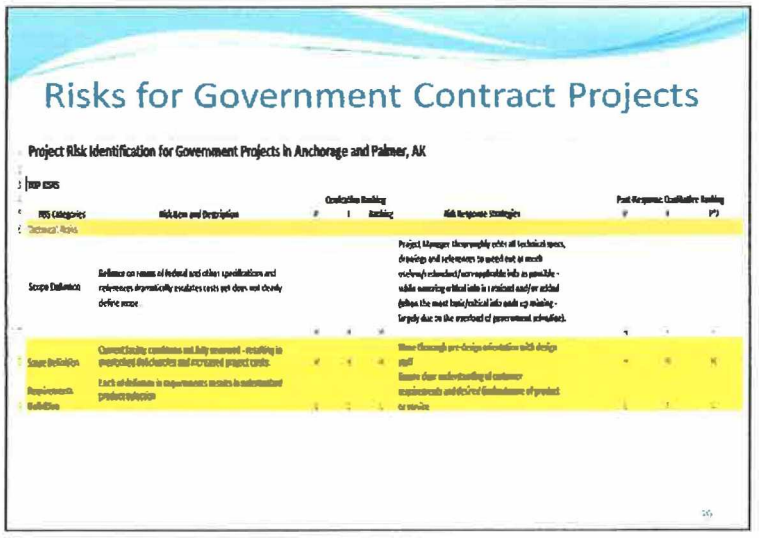
17

Of the total risk items identified by both agencies, technical risks were the highest number identified at 31%, with commercial risks second at 27%, and management risks third at 20%. The categories of external risks and organizational risks were both 11% each of the total number of risks identified. The results for the technical and commercial risks were not surprising, as technical risks, when realized, are most often "show stoppers", and the risks identified under the commercial category are characteristic of risks chronically associated with contract administration.

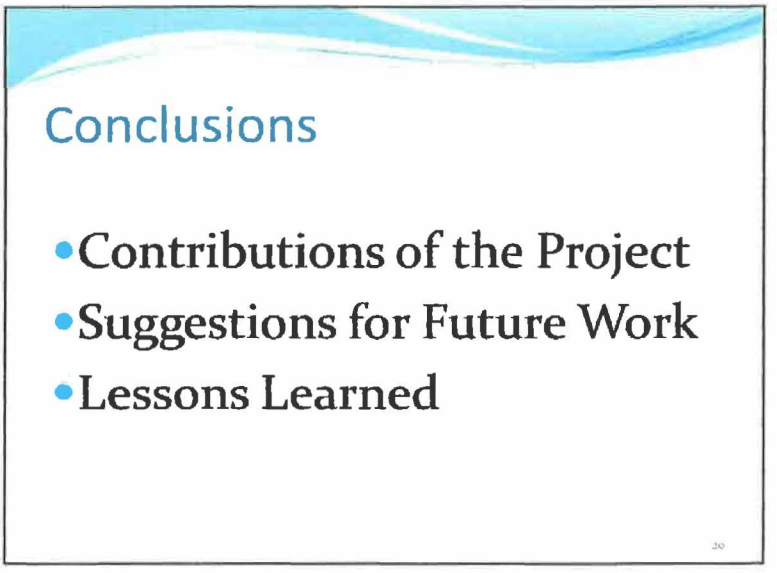
The percentages of risks inputs per category were fairly consistent between both agencies and in total, so only the percentage of risks for the total number of risks identified are presented here .

While the external and organizational risk categories contained the fewest risks identified by the participants, the quality of these risks identified can also have an adverse effect on a project if realized. Among the external risk subcategories, legislation, regulatory, environmental, weather, political and social/demographic risks can and quite often do have adverse impact on projects when realized (PMBOK®, Government Extension, pp.66-67). Also, if organizational culture does not support the implementation of risk management procedures and principles, adverse impacts on the project "triple constraint" are likely.

18



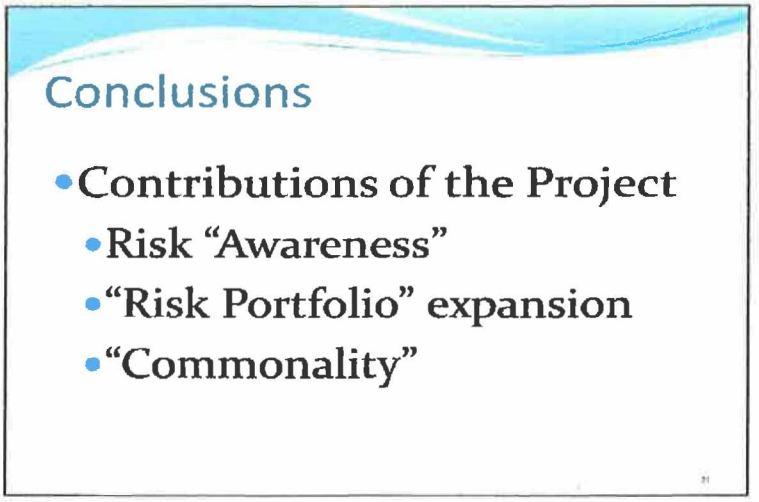
Based on the analysis of the survey responses, some of the top risks for government projects accomplished by contract for the participating agencies are shown in the excerpt from the final risk register depicted in this slide. DNR/PMC provided seven inputs as their priority risks. GSA's top ten are in the register, along with one extra identified by both organizations as pertinent to both agencies. Of the 18 risks ranked, all were negative. Half (9) of the risks were Technical risks, 22 percent (4) were Organizational risks, 11 percent (2) were Commercial risks, and 11 percent (2) were Management risks, and one External risk accounts for 6 percent of the total. All of the risks highlighted in yellow in the risk register are risks identified by each agency from the other agency's RBS submission from the first survey as pertinent to its own agency; hence the "commonality" is 50 percent among the top risks listed in the risk register as identified by both agencies. Of the rankings, 11 risks ranked high (61 percent), 4 ranked medium (22 percent), and 3 ranked low (17 percent).



In summary, the objective of this project was to identify a common core of risks associated with the managing of government projects by contract. Four of the PMBOK® Guide's (Project Management Institute, 2013) six Project Risk Management processes were used as guidance to determine risk categories, aggregate risk items, determine risk rankings, and response strategies that are generally applicable to government projects managed by contract. The deliverables of the project include a report, an RBS, and a risk register. These items were made available to the participating agencies to use in any risk analyses they may undertake.

The survey findings support the original objective of establishing a common core of risks among the participating organizations. The 50 percent commonality among the top risks identified by both organizations was quite an unexpected result. These results, along with the substantial pool of risks and risk response strategies can serve as a foundation for the development of a risk management process for the participating agencies.

The contributions of the project, suggestions for future work, and lessons learned follow.

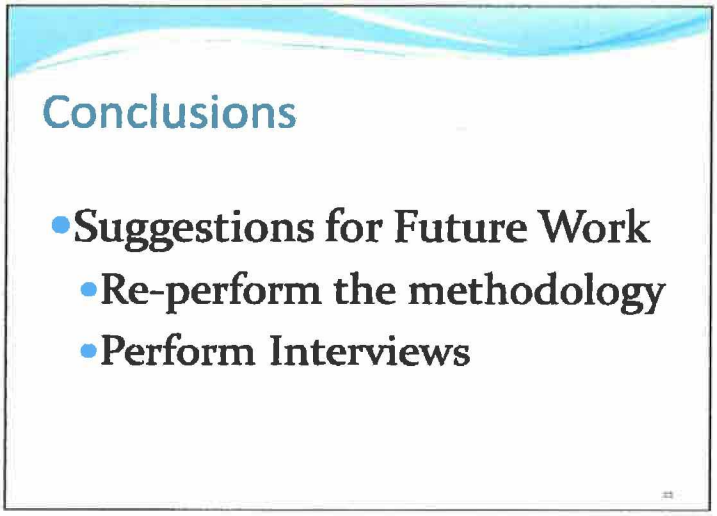


The first and foremost contribution of the project was to promote a greater awareness of the importance of a focused and formal approach to risk identification and management in the public sector. As discussed earlier, government agencies at all levels must practice risk management commensurate with the depth and complexity of the projects they manage. This project supports this goal by bringing together within each participating organization the wealth of experience and expertise it may not have even been aware existed among its PM personnel. This entire risk identification process should be repeated on a periodic basis within each organization, as the risk management process is a dynamic, never ending activity.

This project also contributed in its method of soliciting the risk inputs. The process used was essentially a hybrid of the brainstorming and Delphi techniques, performed electronically, as the participating agencies were geographically separated. The initial solicitation of the risk inputs constitutes brainstorming, bringing together the PM expertise of both organizations considered individually according to each agency's mission and objectives. The re-submitting of the consolidated RBS containing both organization's inputs and requesting that each organization identify those risk inputs among the inputs of the other organization's that apply to their activities, constitutes the Delphi portion of the method in the sense that the participants were not made aware that they would perform this activity until after their individual agency's initial submissions. This provided the best opportunity to determine the "commonality" among the inputs provided. The result was an enrichment of the GSA's "risk portfolio" (collection of risks applicable to their endeavors) by 23 percent and an increase in DNR/PMC's by 33 percent.

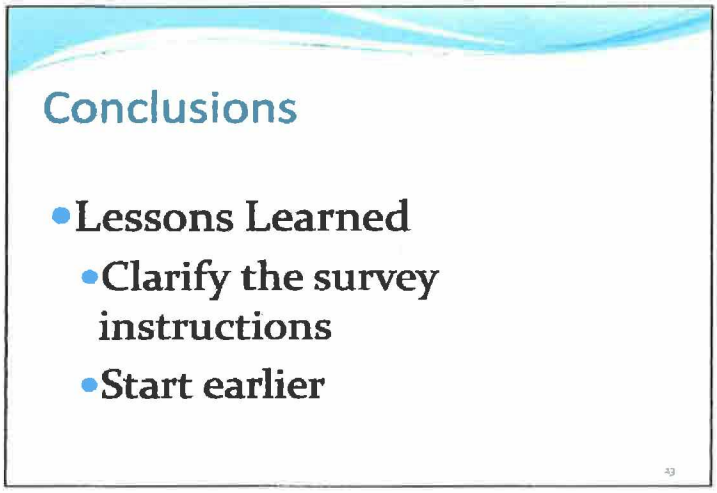
The 50% "commonality" between the top risk items identified by both agencies was essentially established by the agencies themselves as a result of reviewing each others risk inputs. They, in effect, established a "baseline" risk portfolio for their respective organizations and also enriched each other's portfolio of risks through the process of "inter-agency" brainstorming.

21



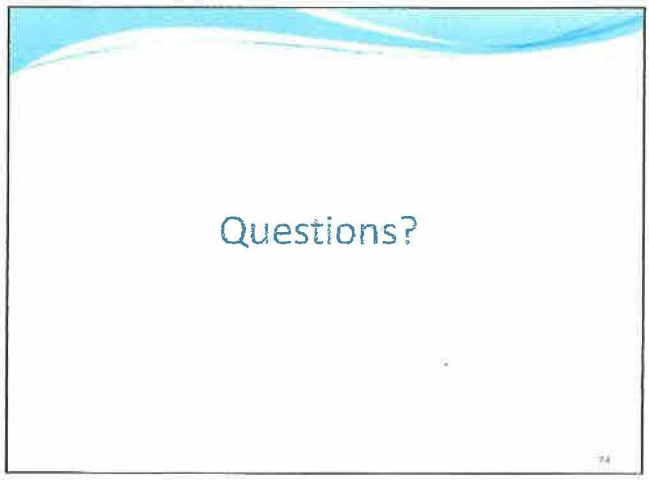
The primary suggestion for future work is to perform the methodology again with as many government agencies (federal, state, and municipal) as possible and continue to consolidate the results. The methodology of this project, extended over the course of a year to a year and a half, would probably produce even better results. Also, while there were no interviews performed as part of this project, it probably could have benefitted from interviewing selected agency personnel before and after the risk solicitation process. During the interview process, the PM could perform "calibration" testing (Hubbard, 2009, pp. 102-106), on selected participants to compare them to the "un-calibrated" participants to determine if the quantity and quality of their inputs are any different.

22



As for lessons learned, the survey instructions apparently could have been made clearer so that there was less confusion as to what the respondents were supposed to provide by way of probability, impact, and qualitative rankings. The project could have benefitted from an earlier start, but attempting to start during the summer months would have made it far more difficult to pin participants down for participation in the project.

23



24

Appendix F. Final Project Progress Report

The pdf file below contains the final version of the Gantt chart. A hard copy will be posted in the project binder under the appropriate appendix of the project management plan and subsequently submitted tom the ESPM department with all other hard copy project documentation.

August Banks_PM 686B_Final Gantt_8 December 2014.pdf

Appendix G. Project Acceptance

NOTE: "this plan" referred to in the documentation below is the project plan in Appendix C.

August Banks
PM 686

9 PROJECT ACCEPTANCE

PM 686 PROJECT

This document establishes formal acceptance of all the deliverables for the PM 686 project. This project has met all the acceptance criteria as documented in the "requirements" and "expectations" columns of the stakeholder register (Appendix F of this plan) and the project scope statement (section 2.3.5 of this plan). A project audit has been performed to verify that all deliverables meet the project and product requirements.

All deliverables as documented in this plan with the exception of formal project closeout procedures have been completed. The points of contact of the participating agencies (GSA and PMC/DNR) have accepted all final deliverables.

The formal close out of this project will be conducted by the PM. The closeout process will include a post-project review, submittal of final project deliverables to the ESPM Department, and archival of all relevant project documents. Once the closing process is completed the Academic Advisor will be notified and the PM will then be released from the project.

9.1 Academic Advisor Acceptance

Approved by the Academic Advisor:

Date: 2 December 2014

Roger Hull
Chairman, Academic Committee

NOTE: The project deliverables were submitted to the POCs of the participating agencies on 21 November 2014. The documentation below verifies the submission of the deliverables as well as the confirmation (on 25 Nov 2014) by the POCs of the participating agencies that the deliverables met the objectives agreed upon at the beginning of the project:

August Banks <arbanks@alaska.edu> Nov 21 (8 days ago)
to Drew, Brianne

Brianne and Drew:

Attached are my deliverables for the project. Please go through everything and let me know in particular if the "contributions" section of the paper reflects the objectives I presented you both with from the beginning. Your feedback is most welcome. Again, thank you both for your support. Without you, there would have been no project.

Very respectfully,

August

9-1

Drew Wareham - 10PSNR Nov 25 (4 days ago)
to me Brianne

August,

Thank you for the information. The deliverables you presented have met objectives agreed upon at the beginning of the project. We (GSA) will analyze them and use them to help in managing future risks.

Thank you for all of your efforts and best of luck to you in all of your future endeavors.

V/R

Drew

...

--

Andrew J. Wareham
Client Resources Manager
Northern Service Center
GSA, PBS, Northwest/Arctic Region
223 West 7th Ave Box 3
Anchorage, Alaska 99513
907.271.1549 Office
907.903.7977 Mobile
907.271.3085 Fax
andrew.wareham@gsa.gov

Brianne Blackburn Nov 25 (4 days ago)
to me Drew

Hi August,

Thanks for the opportunity to provide feedback. I agree with Drew-the objectives align with the earlier discussion and project direction. I appreciated seeing the similarities and differences in data from our two organizations.

I'm not sure where you are in your overall editing process (so feel free to take or leave this feedback) but the colored charts you presented had some layout issues on my end. Could be my mobile display but several of the data labels overlapped, and a few categories had a number with no description.

Congratulations on getting to this point! Good luck with the final presentation and your completion of the program. I really appreciated your structured and consistent communication.

Thanks,
Brianne

Sent from Mailbox

Appendix H. Final Project Management Journal

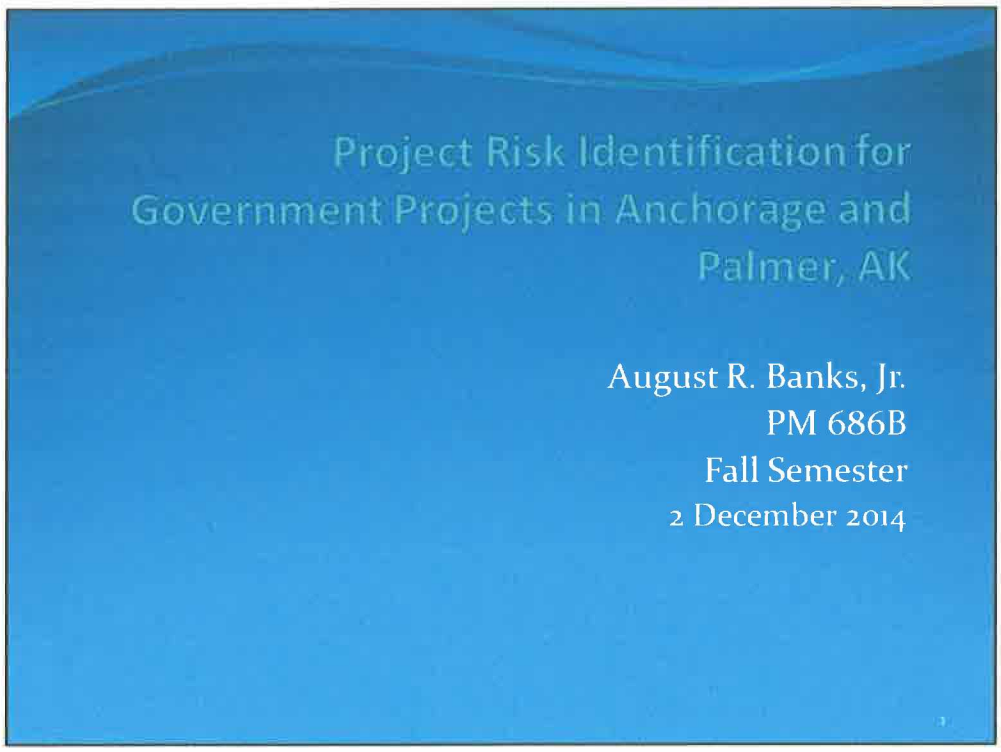
The pdf file below contains the final version of the project management journal. A separate electronic version will be placed in a zip file and on the project CD to be submitted to the ESPM department. The hard copy of the project management plan posted to the project binder submitted to the ESPM department contains the project journal as an appendix.

August Banks_PM 686B_PM Journal_Final_8 Dec 2014.pdf

Appendix I. List of Files on Project CD

The CD accompanying the project binder will contain the following files:

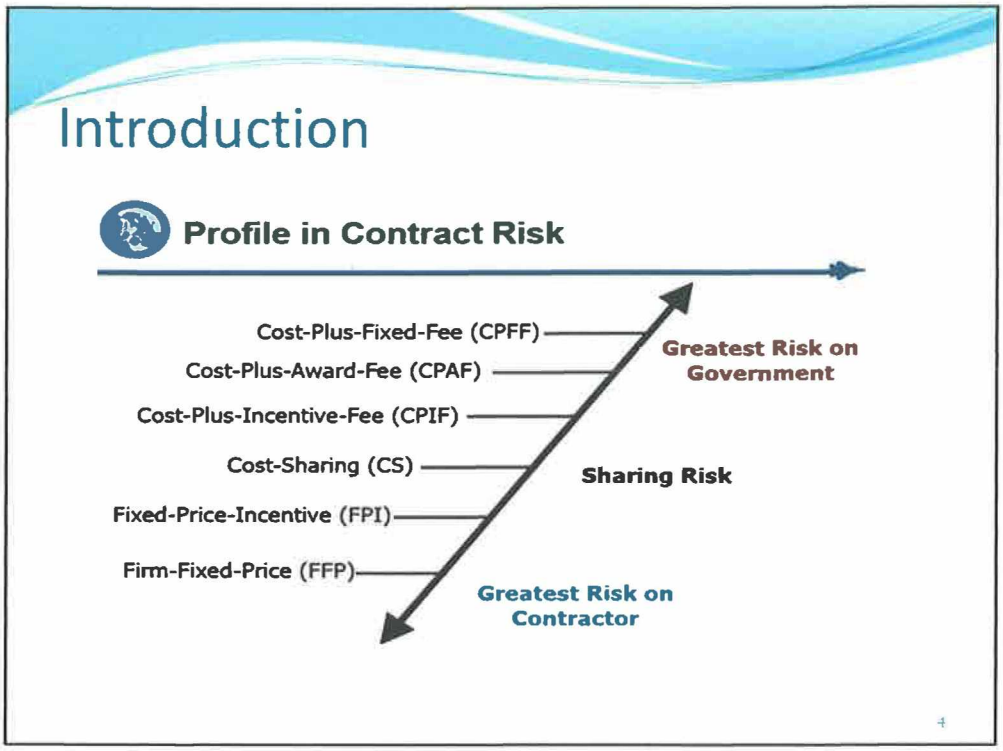
1. The final report
2. The final presentation
3. The lessons learned
4. The selected knowledge areas
5. The final Project Management Plan
6. The Project Charter
7. Agency consent to participate documentation (in lieu of Letters from Project Sponsors)
8. Final RBS
9. Final risk register
10. Final project management journal
11. Final MS project file



Good morning ladies and gentlemen. My name is August Banks and my capstone project is entitled "Project Risk Identification for Government Projects in Anchorage and Palmer, AK".

These are the topics to be covered during this presentation. An introduction containing a brief description of the project objectives and project focus will be followed by descriptions of the risk analysis and methodology used in the project, the method used to gather the data for the project, the risks identified, and the conclusions and recommendations.

The objectives of this project were to identify and consolidate a common core of risks associated with managing government projects via contracts. The primary stakeholder focus was the government program and project managers associated with the General Services Administration and the Plant Materials Center of the Alaska Department of Natural Resources located in Anchorage and Palmer, respectively. These participating agencies were provided the final project deliverables consisting of a risk breakdown structure (RBS) and a Risk register to be used as a checklist to identify risks associated with any of their future projects. The following graphic serves as an illustration emphasizing the need for vigilant risk management for government projects accomplished by contract.

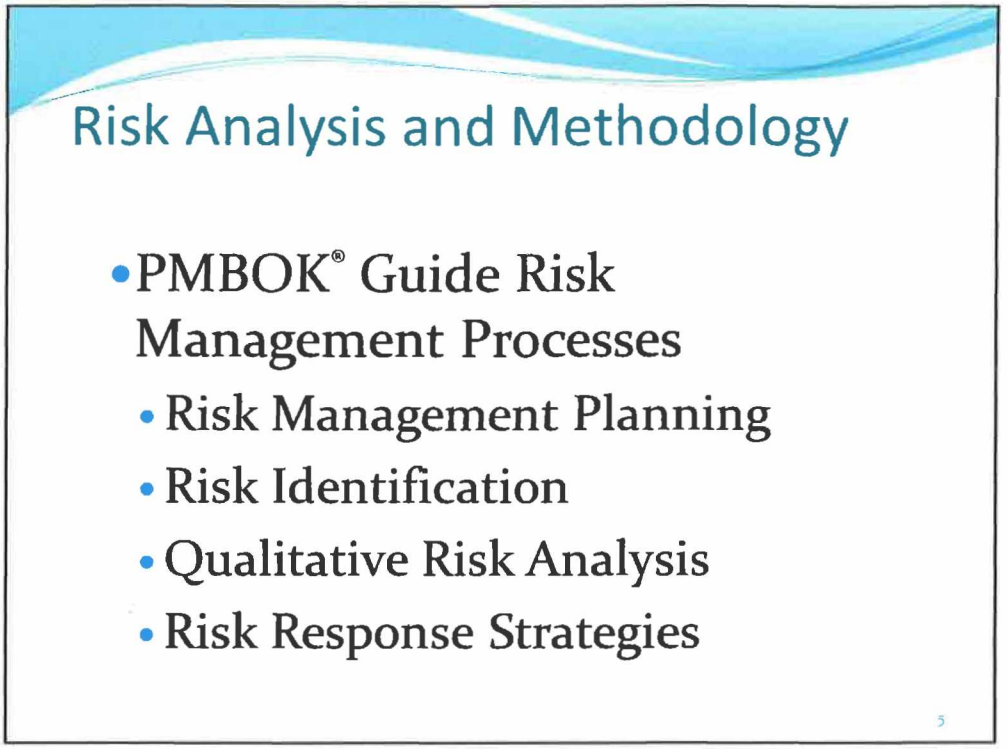


The sharing of and responsibility for risk experienced on a project/program is related to the contract type between the government and prime contractor (or prime contractor and subcontractor). In general, cost-type contracts (e.g., Cost plus fixed fee) place more risk on the government (buyer) than the prime contractor (seller), whereas the reverse is true for fixed-price contracts (e.g., firm-fixed price). There are gradations between these two extremes depending upon which specific type of contract is used; this is clearly illustrated in the present slide. The guidance illustrated here is applicable to many, but certainly not all programs/projects, and it is imprudent if not dangerous to accept and/or apply it indiscriminately.

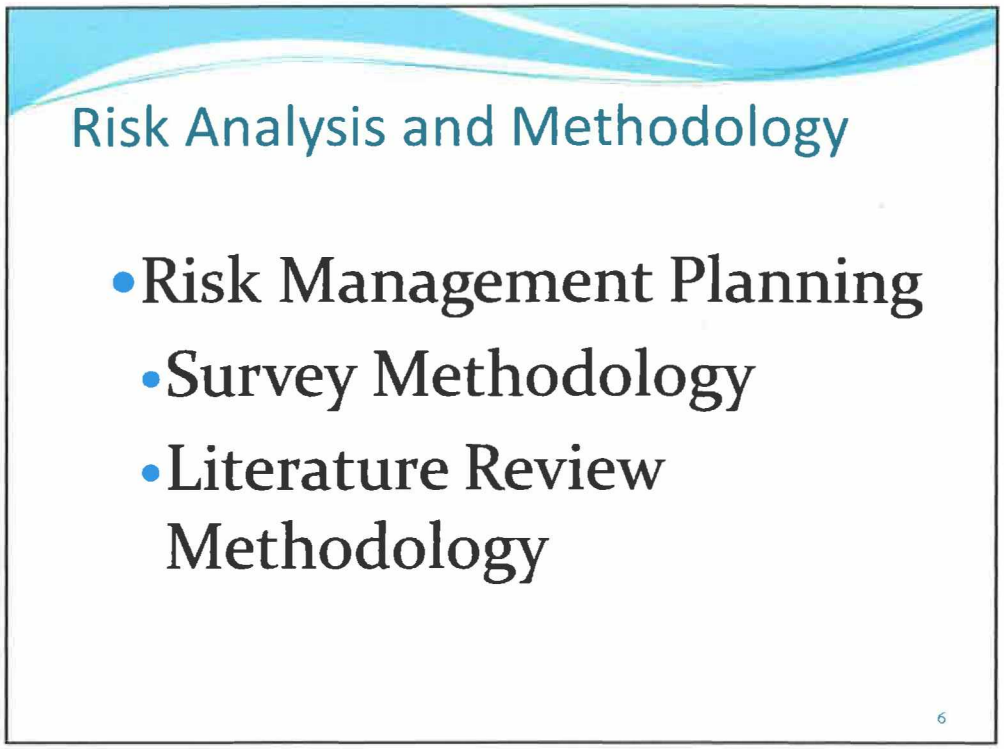
To illustrate, if the prime contractor performs poorly on a cost-type contract, this may jeopardize its position for future procurements. Similarly, the government is not absolved of risk when it uses a fixed-price contract. If the contractor performs poorly, the government may not receive the promised item on time, or the contractor may not meet necessary performance specifications. When there are no close substitutes, the government may be stuck without any desirable, if not viable, options.

Consequently, regardless of the contract type used, both the government (buyer) and the prime contractor (seller) should generally have an effective risk management process implemented and used continuously. Neither the government nor the prime contractor (seller) is absolved from having an effective risk management process in place because neither party will ordinarily face zero risk on most projects/programs. Failure to do this can lead to substantial adverse impacts, regardless of the contract type used.

The example presented here serves as the foundation for the objectives of this project. The risks identified by the participating agencies were consolidated and analyzed with the intent of aiding them in any future risk analyses they may perform on future projects. The analysis and methodology used in the project will now be presented.



The PMBOK® Guide (Project Management Institute (PMI), 2013) and its government extension (PMI, 2006) are the sources for Project Risk Management processes used in this project. The PMBOK® is a globally recognized standard which readily facilitates the development of the RBS and risk register for this project and allows those deliverables to be effectively utilized by project managers trained in the PMI project management methodology. These guides define risk as "an uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives", and the content of the guide's risk management processes are consistent with this definition. Of the six processes delineated in the guide, four were used in this project: 1) Plan risk management, 2) Identify risks, 3) Perform qualitative analysis, and 4) Plan risk responses. Each one of these will be presented as they relate to this project

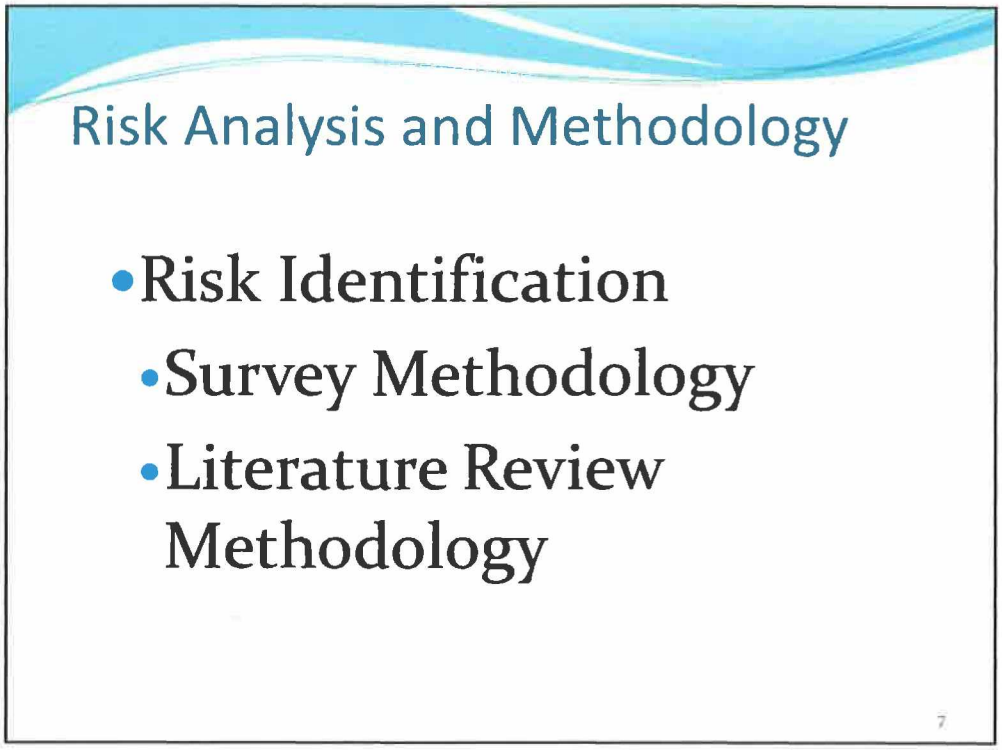


Risk Management Planning is "the process of defining how to conduct risk management activities for a project." (PMBOK®, 2013, p.313). The activities associated with this process must be tailored to individual organizations and projects. This project focuses on the development of a general RBS to be used to organize risks common to government projects accomplished by contract. The RBS can be used early in the Risk Management Planning process as a tool for brainstorming and categorizing risks. The hierarchical structure allows for increasing levels of detail in the identification and categorization process. An alternative to the RBS is to simply develop a list of risk items. However, the value of using the RBS lies in its ability to encompass categories of risks external to the organization or agency as well as categories of technical risk that may affect the project's outcome. The findings of literature reviews were used to identify risk categories to include in the RBS template used in this project.

The first survey used in this project was used to identify risks as well as to expand upon the categories of the initial RBS template obtained as a result of literature reviews. The survey requested inputs for both positive and negative risk items as well as any additions or changes to the risk categories listed in the RBS template submitted with the survey.

The literature reviews performed for this project served as the primary source for the RBS template used in the project, as well as the source for risk categories associated with government projects accomplished by contract. Books used as texts in the MSPM program were also consulted.

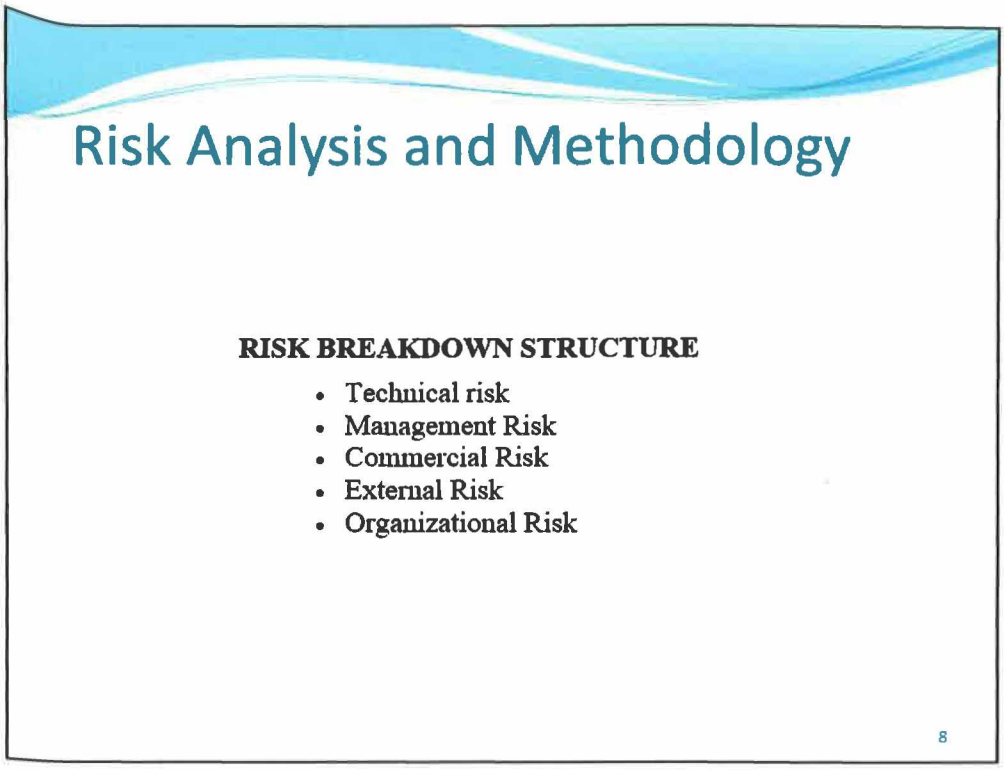
The method used to identify risks in this project is presented next.



"Identify risks is the process of determining which risks may affect the project and documenting their characteristics. The key benefit of this process is the documentation of existing risks and the knowledge and ability it produces to the project team to anticipate events...
...Identify risks is an iterative process, because new risks may evolve or become known as the project progresses through its life cycle." (PMBOK®, 2013, pp. 319-321). This project used a survey and literature searches for the Risk Identification process.

A survey was used in this project to identify risk items. The survey utilized an RBS template obtained through literature searches and was transmitted via e-mail to project/program managers of the participating organizations; the General Services Administration (GSA) and the Plant Materials Center of the Alaska Department of Natural Resources (DNR/PMC). Survey respondents were asked to populate the categories in the RBS template with risks associated with managing government projects via contract. They were also asked to provide positive as well as negative risks as well as provide any changes or additions to the risk categories of the RBS as they deemed appropriate.

The Literature search for this project was also used to identify sources of risks as pertains to government projects accomplished by contract. Among the sources reviewed, the RBS template depicted in the next slide was chosen. This RBS had the largest number of risk categories



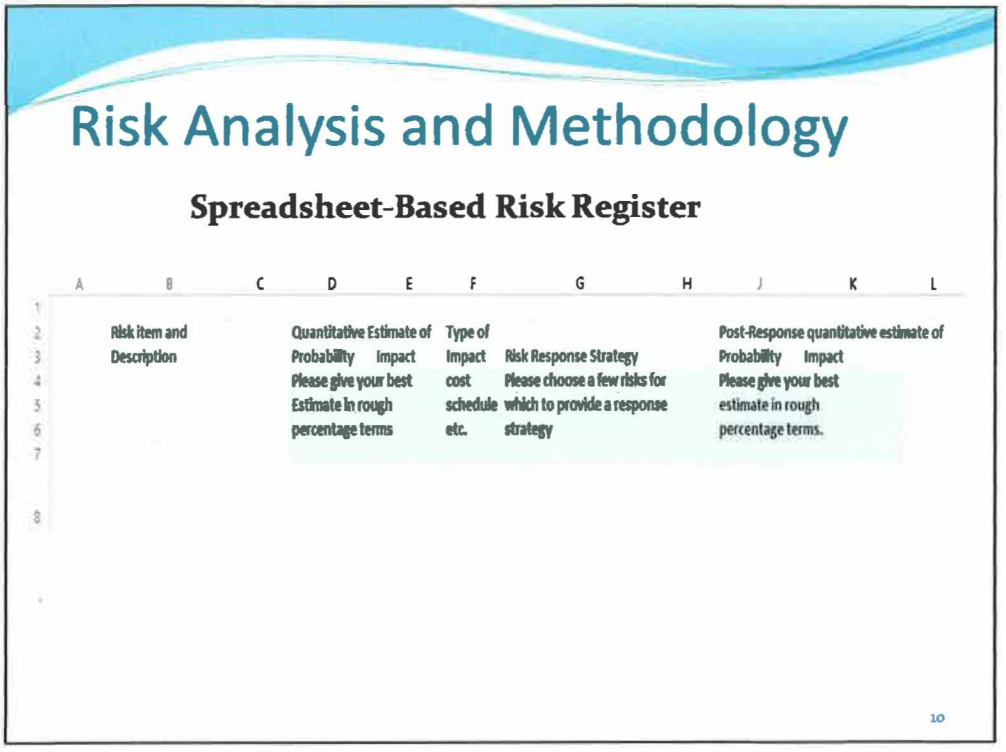
Among the literature sources reviewed, the RBS template depicted in this slide was chosen. This RBS had the largest number of risk categories, with the five broad categories shown here. They were broken down into 42 subcategories. This was the template used to elicit risks from the project participants. The methodology used in the qualitative risk analysis will now be presented.

"Perform Qualitative Risk Analysis is the process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact. The key benefit of this process is that it enables project managers to reduce the level of uncertainty and to focus on high-priority risks." (PMI, 2013, p. 328).

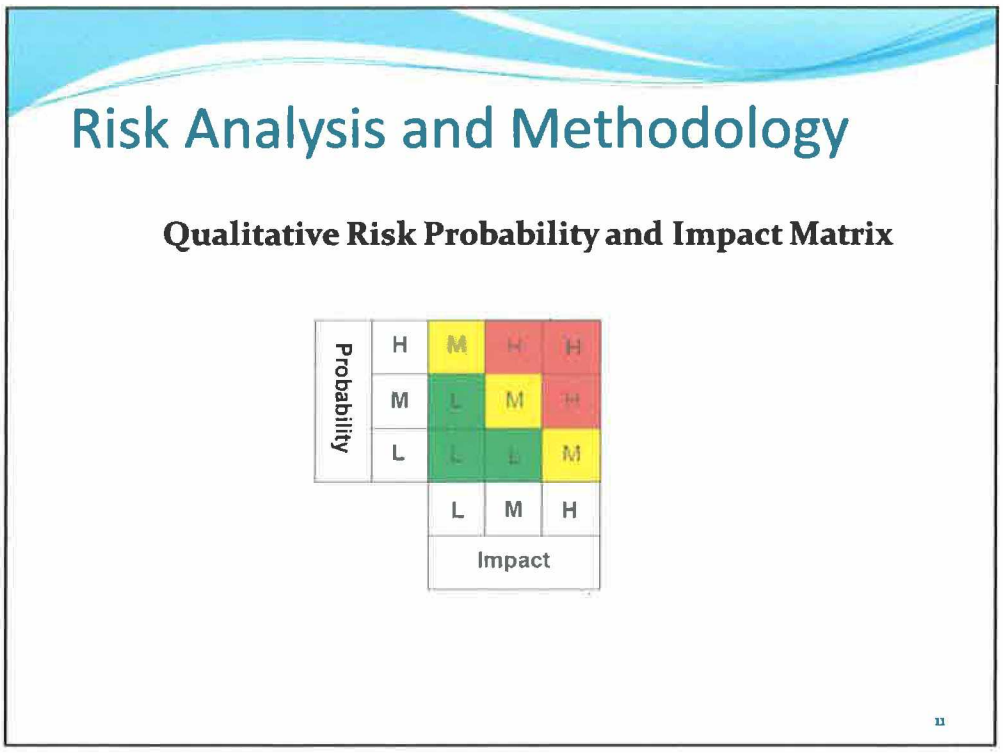
A second survey was distributed to the project participants in order to solicit the qualitative ranking of the set of risks collected from the first survey.

Separate rankings for the probability and impact of risks are included in the qualitative rankings. Although probability refers to the likelihood that a given event will occur and is usually expressed as a range of percentages, for the purposes of this project, three qualitative categories of probability were used: low, medium, and high. Analysis of the results of the second survey were used to determine these categories rather than directly presenting the categories to the survey respondents to use in order to avoid survey bias.

Risk impact refers to the consequence(s) of the risk(s) actually occurring. Realized risks can impact the cost, scope, schedule, or quality of a project in a variety of ways. In a qualitative analysis the impacts are expressed in ranges. As with the probability rankings, this project uses three qualitative categories for project impact based on responses to the second survey: low, medium, and high.



A spreadsheet-based risk register was used in the second survey that was distributed to the participating agencies in order to assess the importance of each of the types of risks identified during the Risk Identification process. The participants were asked to provide a qualitative ranking for each risk and a category of impact, such as cost or schedule. The rankings were then analyzed in order to develop the ranges for the high, medium, and low qualitative categories using the generalized qualitative Risk Probability and Impact matrix depicted in the next slide.



The generalized qualitative Risk Probability and Impact matrix shown in this slide was used to prioritize the risks, based on the three categories (high, medium, and low) for risk probability and impact.

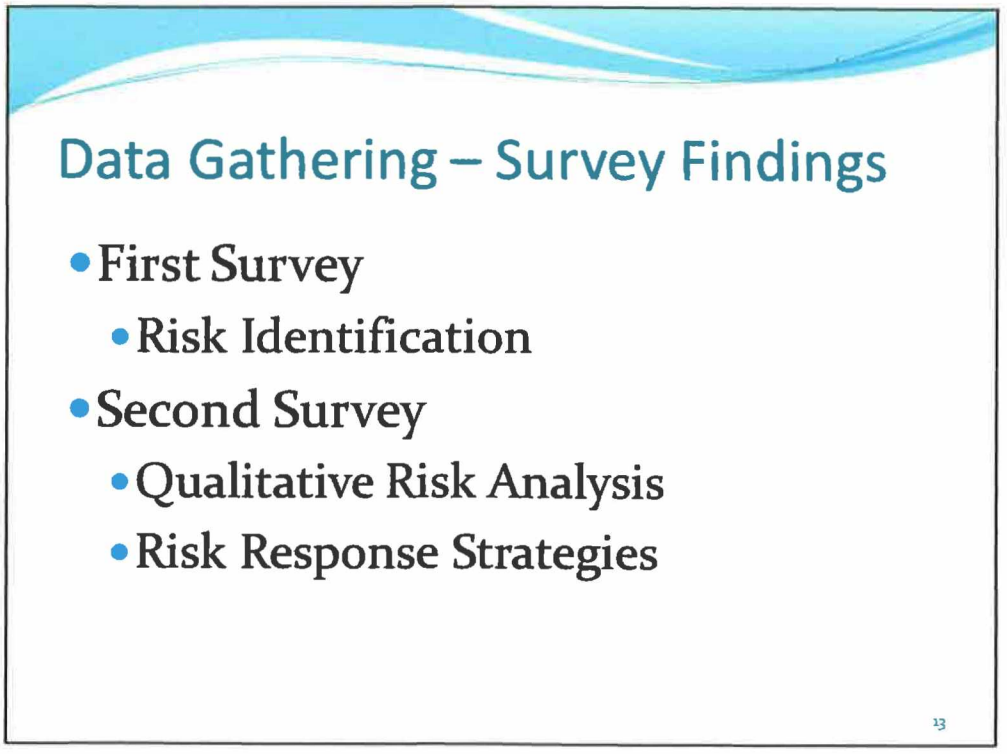
The qualitative probability and impact classifications used for this project are intentionally simple. The objective is to identify the risks and give them a relative priority, so that each participating agency can determine how to integrate each applicable risk into the "risk portfolio" of the agency's specific projects or its risk management process.

Project risk response strategies will now be addressed as related to the project.

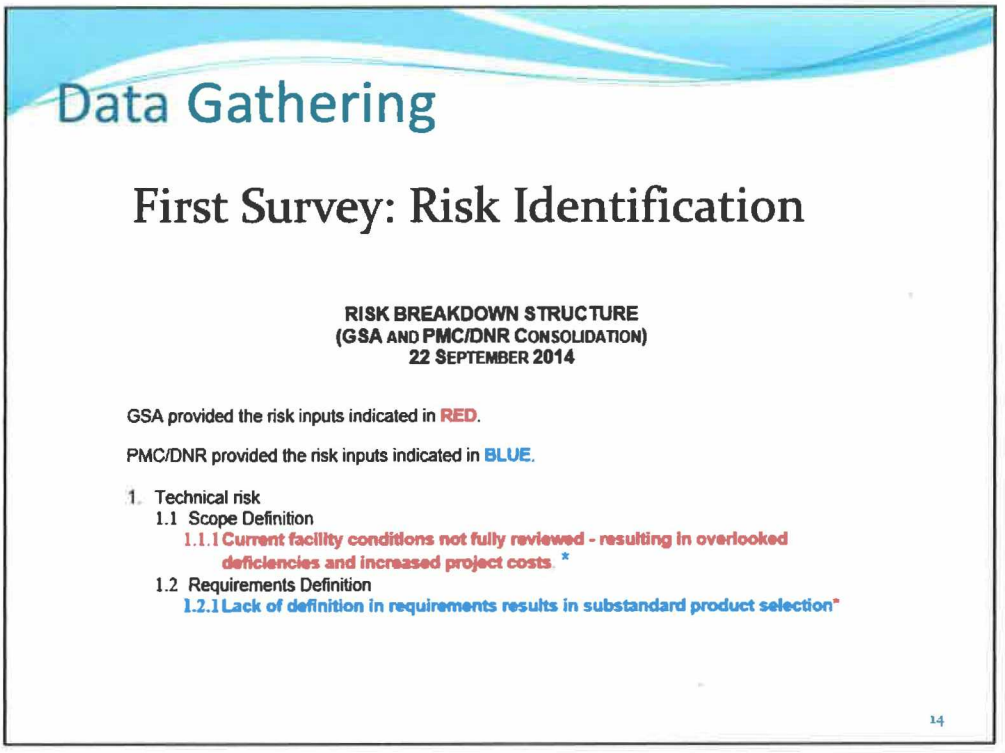
"Plan Risk Responses is the process of developing options and actions to enhance opportunities and to reduce threats to project objectives. The key benefit of this process is that it addresses the risks by their priority, inserting resources and activities into the budget, schedule, and project management plan as needed." (PMBOK®, 2013, p.342).

This project used a second survey to solicit both risk response strategies for each item identified in the first survey and the post-response qualitative probability and impact ratings. The participants were asked to fill in a few of the blank cells in the spreadsheet-based risk register pertaining to the possible risk response strategies and the mitigated qualitative rankings resulting from the strategy. These were later incorporated into the final version of the risk register provided to the participating agencies.

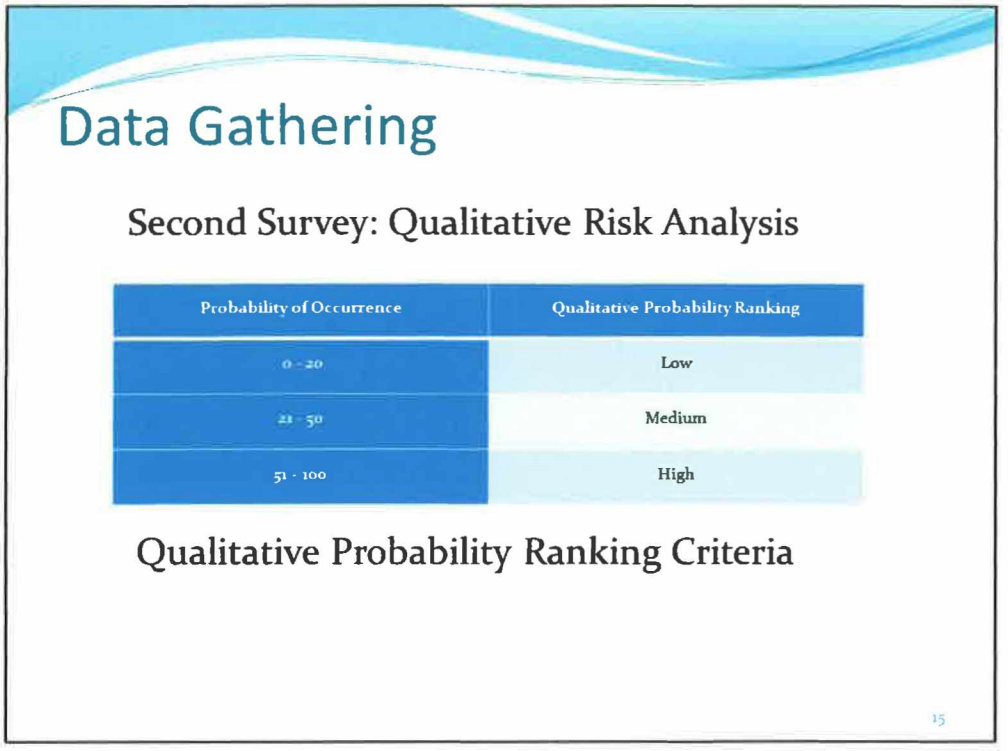
We now present the method used to gather the data for the project.



The first survey was sent to the organizational points of contact of the participating agencies for distribution to those individuals they determined could participate in the survey. Eight participants from the GSA and four from DNR/PMC for a total of 12 participants contributed to the project. A total of 62 risks were identified by the respondents. Only negative risks were identified. None of the participants added or changed any of the risk categories in the RBS. An excerpt from the consolidated RBS depicting the consolidation of the risks identified by both agencies is shown in the next slide.

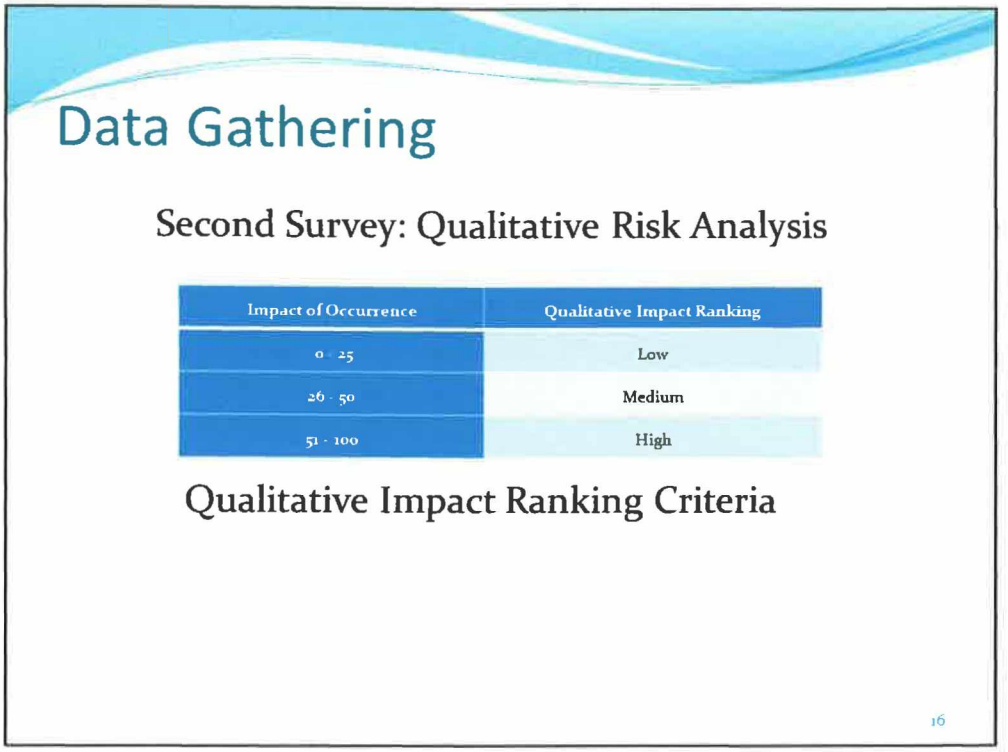


After the consolidation of the risks identified in the first survey, the RBS was re-submitted with the second survey, and each organization was requested to indicate with an asterisk which, if any, risk inputs identified by the other organization would be applicable to their agency. This is depicted in the RBS excerpt by asterisks of the opposite color of the risks indicated.



The same number of participants were solicited for input into the second survey. The primary reasons for the second survey were to obtain qualitative probability and impact ratings for each of the risks identified, to collect information on the types of impacts the participants expected the risk would have, as well as any risk response strategies and their effect on the risk item.

The qualitative probability ranking criteria are shown in this slide. Forty percent of the responses fell within the probability range of 0 to 20 percent, followed by thirty-seven percent of the responses falling in the range from 21 to 50 percent. These two ranges were used for the low and medium categories, respectively. Risks with an average probability of occurrence in excess of 50 percent were classified in the high priority category.



Risk impacts were classified in a similar manner to the risk probability classifications. Thirty-eight percent of the responses fell within the impact range of 0 to 25 percent, and thirty-seven percent fell within the impact range of 26 – 49 percent. Consequently, those two ranges were used for the low and medium categories, respectively. Risks with an average impact in excess of 50 percent were classified in the high impact category.

The risk response strategies and post-response probability and impact estimates solicited from the participants as part of the second survey were the result of consensus of PMs within the respective agencies, so that only one risk response strategy per risk item was provided. Where the respondents of the agency provided no risk response strategy, that cell in the risk register spreadsheet was left blank.

The risk items identified as well as the contents of the final risk register will now be presented.

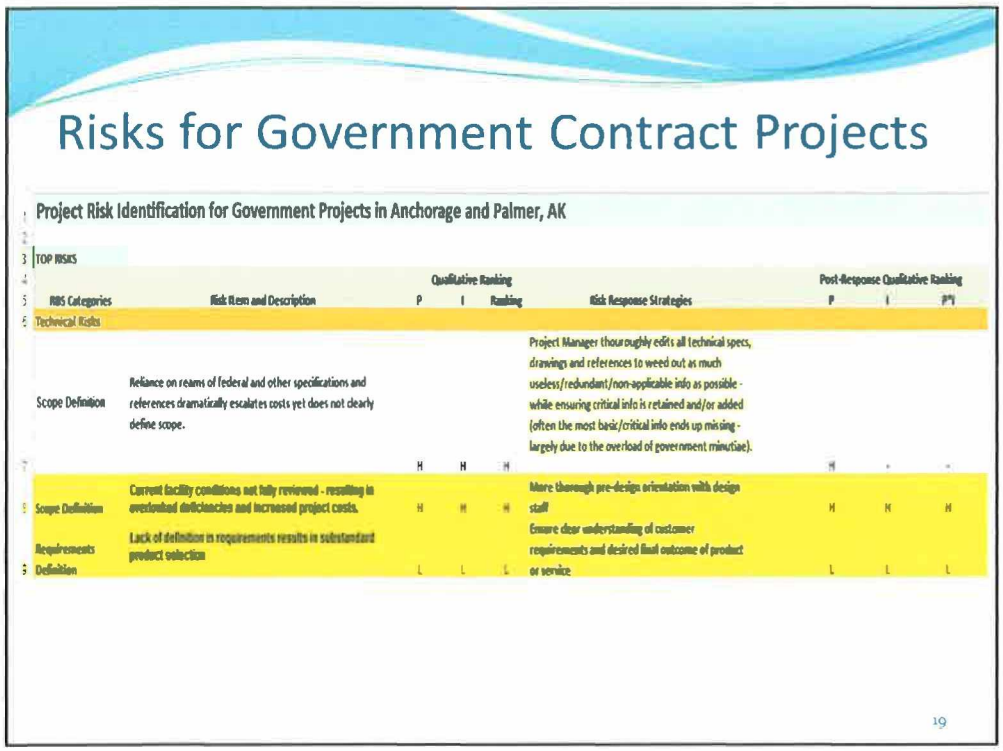
As stated previously, from the RBS developed for this project, the risks associated with managing government projects via contract were consolidated by categories and the percentages of each category were determined. These percentages are depicted in the following slide. Also, an excerpt from the final version of the risk register will be presented and comments made concerning its content. We start first with the risks as identified in the RBS.

Of the total risk items identified by both agencies, technical risks were the highest number identified at 31%, with commercial risks second at 27%, and management risks third at 20%. The categories of external risks and organizational risks were both 11% each of the total number of risks identified. The results for the technical and commercial risks were not surprising, as technical risks, when realized, are most often "show stoppers", and the risks identified under the commercial category are characteristic of risks chronically associated with contract administration.

The percentages of risks inputs per category were fairly consistent between both agencies and in total, so only the percentage of risks for the total number of risks identified are presented here .

While the external and organizational risk categories contained the fewest risks identified by the participants, the quality of these risks identified can also have an adverse effect on a project if realized. Among the external risk subcategories, legislation, regulatory, environmental, weather, political and social/demographic risks can and quite often do have adverse impact on projects when realized (PMBOK®, Government Extension, pp.66-67). Also, if organizational culture does not support the implementation of risk management procedures and principles, adverse impacts on the project "triple constraint" are likely.

Risks for Government Contract Projects



Project Risk Identification for Government Projects in Anchorage and Palmer, AK

TOP RISKS

RBS Categories	Risk Item and Description	Qualitative Ranking P	I	Ranking	Risk Response Strategies	Post-Response Qualitative Ranking P	I	P*I
Technical Risks								
Scope Definition	Reliance on reams of federal and other specifications and references dramatically escalates costs yet does not clearly define scope.	H	H	H	Project Manager thoroughly edits all technical specs, drawings and references to weed out as much useless/redundant/non-applicable info as possible - while ensuring critical info is retained and/or added (often the most basic/critical info ends up missing - largely due to the overload of government minutiae).	H	-	-
Scope Definition	Current facility conditions not fully reviewed - resulting in overlooked deficiencies and increased project costs.	H	H	H	More thorough pre-design orientation with design staff	H	H	H
Requirements Definition	Lack of definition in requirements results in substandard product selection	L	L	L	Ensure clear understanding of customer requirements and desired final outcome of product or service	L	L	L

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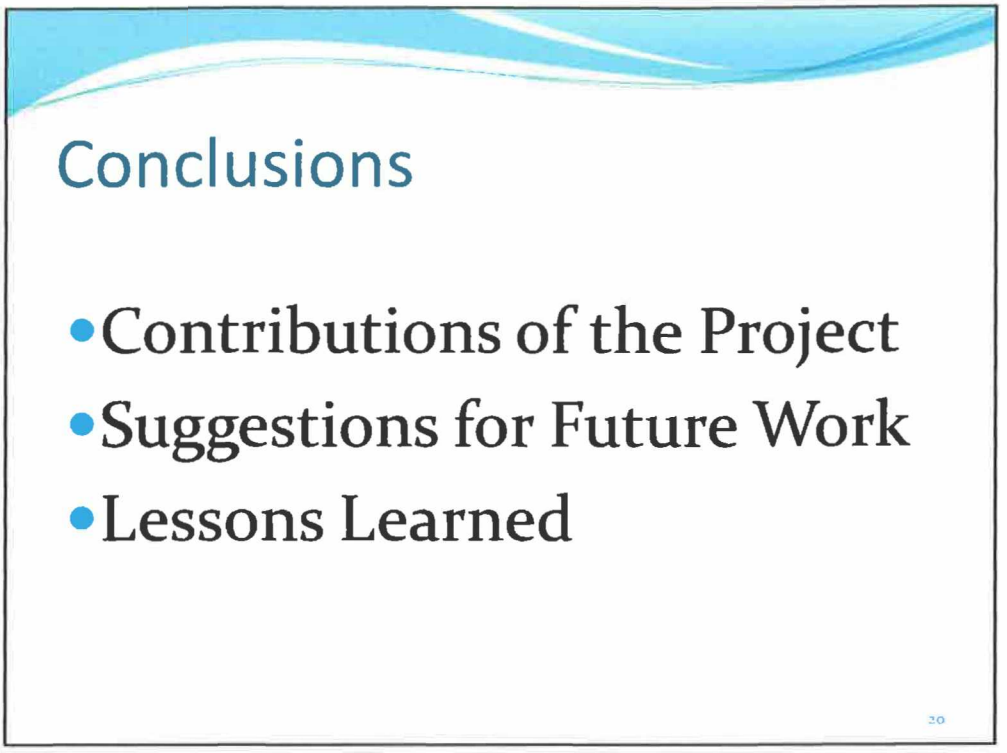
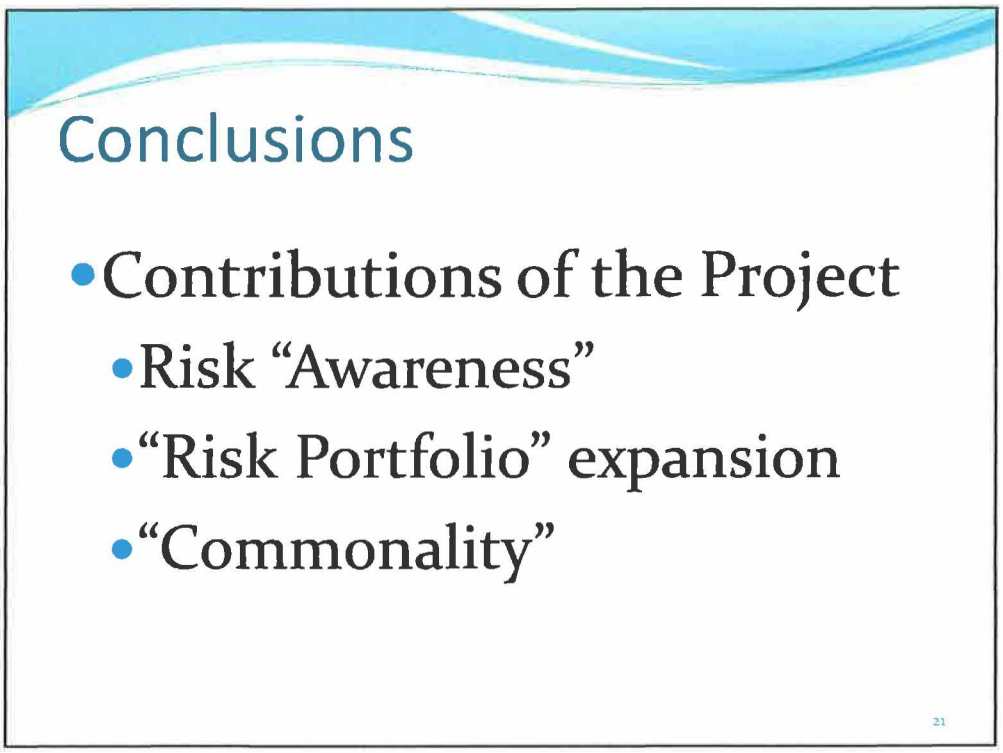
Based on the analysis of the survey responses, some of the top risks for government projects accomplished by contract for the participating agencies are shown in the excerpt from the final risk register depicted in this slide. DNR/PMC provided seven inputs as their priority risks. GSA's top ten are in the register, along with one extra identified by both organizations as pertinent to both agencies. Of the 18 risks ranked, all were negative. Half (9) of the risks were Technical risks, 22 percent (4) were Organizational risks, 11 percent (2) were Commercial risks, and 11 percent (2) were Management risks, and one External risk accounts for 6 percent of the total. All of the risks highlighted in yellow in the risk register are risks identified by each agency from the other agency's RBS submission from the first survey as pertinent to its own agency; hence the "commonality" is 50 percent among the top risks listed in the risk register as identified by both agencies. Of the rankings, 11 risks ranked high (61 percent), 4 ranked medium (22 percent), and 3 ranked low (17 percent).



In summary, the objective of this project was to identify a common core of risks associated with the managing of government projects by contract. Four of the PMBOK® Guide's (Project Management Institute, 2013) six Project Risk Management processes were used as guidance to determine risk categories, aggregate risk items, determine risk rankings, and response strategies that are generally applicable to government projects managed by contract. The deliverables of the project include a report, an RBS, and a risk register. These items were made available to the participating agencies to use in any risk analyses they may undertake.

The survey findings support the original objective of establishing a common core of risks among the participating organizations. The 50 percent commonality among the top risks identified by both organizations was quite an unexpected result. These results, along with the substantial pool of risks and risk response strategies can serve as a foundation for the development of a risk management process for the participating agencies.

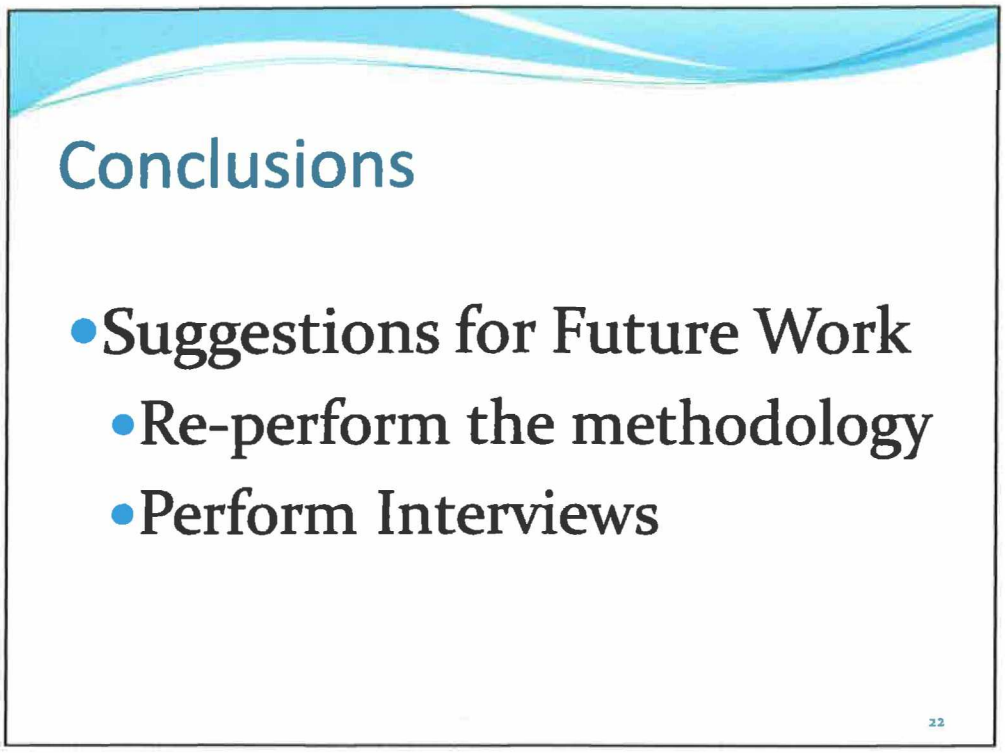
The contributions of the project, suggestions for future work, and lessons learned follow.



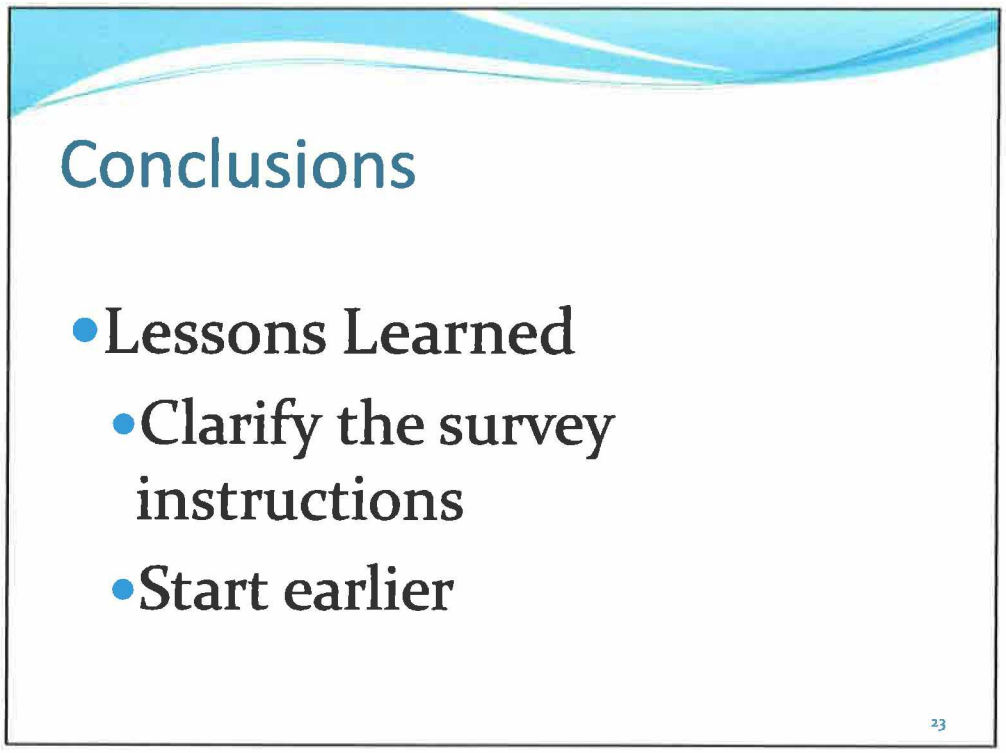
The first and foremost contribution of the project was to promote a greater awareness of the importance of a focused and formal approach to risk identification and management in the public sector. As discussed earlier, government agencies at all levels must practice risk management commensurate with the depth and complexity of the projects they manage. This project supports this goal by bringing together within each participating organization the wealth of experience and expertise it may not have even been aware existed among its PM personnel. This entire risk identification process should be repeated on a periodic basis within each organization, as the risk management process is a dynamic, never ending activity.

This project also contributed in its method of soliciting the risk inputs. The process used was essentially a hybrid of the brainstorming and Delphi techniques, performed electronically, as the participating agencies were geographically separated. The initial solicitation of the risk inputs constitutes brainstorming, bringing together the PM expertise of both organizations considered individually according to each agency's mission and objectives. The re-submitting of the consolidated RBS containing both organization's inputs and requesting that each organization identify those risk inputs among the inputs of the other organization's that apply to their activities, constitutes the Delphi portion of the method in the sense that the participants were not made aware that they would perform this activity until after their individual agency's initial submissions. This provided the best opportunity to determine the "commonality" among the inputs provided. The result was an enrichment of the GSA's "risk portfolio" (collection of risks applicable to their endeavors) by 23 percent and an increase in DNR/PMC's by 33 percent.

The 50% "commonality" between the top risk items identified by both agencies was essentially established by the agencies themselves as a result of reviewing each others risk inputs. They, in effect, established a "baseline" risk portfolio for their respective organizations and also enriched each other's portfolio of risks through the process of "inter-agency" brainstorming.



The primary suggestion for future work is to perform the methodology again with as many government agencies (federal, state, and municipal) as possible and continue to consolidate the results. The methodology of this project, extended over the course of a year to a year and a half, would probably produce even better results. Also, while there were no interviews performed as part of this project, it probably could have benefitted from interviewing selected agency personnel before and after the risk solicitation process. During the interview process, the PM could perform "calibration" testing (Hubbard, 2009, pp. 102-106), on selected participants to compare them to the "un-calibrated" participants to determine if the quantity and quality of their inputs are any different.



As for lessons learned, the survey instructions apparently could have been made clearer so that there was less confusion as to what the respondents were supposed to provide by way of probability, impact, and qualitative rankings. The project could have benefitted from an earlier start, but attempting to start during the summer months would have made it far more difficult to pin participants down for participation in the project.


Questions?
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Project Risk Identification for
Government Projects in
Anchorage and Palmer, AK
Lessons Learned
August Banks
PM686B
8 December 2014

The lessons learned during the implementation phase of this project are as follows:

- Stakeholder Management: When you have a project tool such as a survey or list, that you need your stakeholders to use for some purpose in the project, make sure you verify that they understand the tool(s) and what you expect them to do with it (them). While I was able to make adjustments to the data provided by the survey participants, things would have gone a little smoother if I'd followed up with both POCs just after providing them with the surveys to make sure everything was clear.

- Time/schedule management: "Don't use a sledgehammer when a standard nail-puller will do"; the milestone list as depicted in the "Summary Milestone Schedule" (section 2.6 of the project management plan. **NOTE: All Milestones listed were met.**) was more than adequate to track my project activities since there were no major intricacies among the project tasks that would require any extensive schedule management activities. Although the final Gantt is depicted in its appropriate appendix in the project management plan, the summary milestone schedule was more to the spirit of the matter.

- Also, an earlier start (prior to the beginning of the semester) would perhaps have helped. If the surveys were sent just after the end of the spring 2014 term (just at the beginning of winter "break-up) before the good weather months, perhaps more risk inputs may have been obtained.

Project Risk Identification for
Government Projects in
Anchorage and Palmer, AK
Lessons Learned
August Banks
PM686B
8 December 2014

NOTE: The following lessons learned were documented earlier during the planning phase of the project (PM 686A):

- The IRB process: Get your submissions together early on in the project! This IRB approval process is a fairly new requirement to the project management program and needs to be taken seriously. It can mean the difference between go and no-go for your project. Although recently (as of this correspondence), certain "quirks" have been addressed in the system from an administrative standpoint, it still behooves one to start this process early as the training required as a prerequisite to approval is rather lengthy. If one is anticipating involving a number of stakeholders in one's project not associated with UAA, you have to provide the IRB with proof of these stakeholders' consent to participate in one's project. This could take some time, so a good head start is absolutely necessary.

It would also help to coordinate with the IRB POC at the very beginning to find out if there have been any major changes to the program, either in content or in terms of personnel changes. New IRB members may not be totally familiar with the system and errors on their part could delay your approval. Learning from the experiences of students that advanced to PM 686B as to what they went through trying to obtain IRB approval can also be of tremendous help. Many of these experiences are listed on the UAA blackboard for the course.

Have a backup list of potential stakeholders in the event you need to replace one or more of them in your project. There were stakeholders that had to be replaced during the planning phase of the project, and fortune smiled upon us in the form of a list provided by the PM department that allowed for the replacement of stakeholders who could no longer commit to the project. Obtain or develop such a list early on in the project.

- Time management: Acquire the habit of allotting the necessary time as well as the same time period for important planning activities. Sporadic time management can lead to loss of continuity in planning due to losing one's "train of thought". Rushing at the last minute to put together a deliverable or group of deliverables can lead to a reduction in the quality of the product produced, if not actual omissions of pertinent data or other elements necessary to the project.

Project Risk Identification for
Government Projects in
Anchorage and Palmer, AK
PM Knowledge Areas
August Banks
PM686A
8 December 2014

The following PM knowledge areas were emphasized during the implementation of the project:

- Project Scope Management via a scope management process including change requests and a change log.
- Project risk management utilizing a risk register
- Project Stakeholder Management utilizing a stakeholder register and an issue log

The table below shows the KPIs to be tracked for each knowledge area:

Critical Success Criteria	Performance Metrics	Assessment Interval
Schedule Baseline	- Cost Performance Index (CPI) with a positive number - CPI of 0.85 or higher - Percent of Overdue Project Tasks ≤ 15%	Weekly
Change Management Plan	- Number of Change Requests / DCVR to project scope: six change requests for the entire project	Weekly
Risk Management	- Percentage of risks realized to risks identified ≤ 50%	Weekly
Stakeholder Management	- Stakeholder turnover rate ≤ 50% - Ratio of stakeholder requirements changes to requirements baseline ≤ 66%	Weekly
	-	

SCOPE MANAGEMENT

The area of scope management was chosen in order to show proficiency in the managing of requirements changes and the expeditiousness of handling these changes and incorporating them into the project. While there was only one change request processed and approved during the implementation of the project, it was not for a scope change; it was for an update to the schedule for the project. There were no changes in the project or product requirements for the duration of the project. Consequently, the goal of keeping change requests to six or less was realized.

STAKEHOLDER MANAGEMENT

The knowledge area of stakeholder management was not as problematic during project implementation as it was during project planning. All stakeholders were frequently and expeditiously communicated with throughout project implementation, and there were no turnover of stakeholders through the implementation of the project, so our stakeholder turnover rate was zero for the project.

There were no change in stakeholder requirements during the implementation of the project, so our ratio of stakeholder requirements changes to the requirements baseline was also zero. **NOTE**: The POCs for the participating agencies were provided with the final project deliverables on 21 Nov 2014; they reviewed them and provided confirmation (25 Nov 2014) that the deliverables met the objectives agreed upon at the beginning of the project (supporting documentation to verify this is located in section 9.1 ("Project Acceptance") of the project management plan); the requirements and expectations as delineated in the stakeholder register were satisfied.

The issue log used to track stakeholder issues serves as a record of significant stakeholder activity throughout the project. This was a convenient way to address stakeholder issues as well as provide a reference for the documentation of stakeholder-related lessons learned.

Project Risk Identification for
Government Projects in
Anchorage and Palmer, AK
PM Knowledge Areas
August Banks
PM686A
8 December 2014

RISK MANAGEMENT

The knowledge area of risk management was chosen because risk is inherent in any project from the moment of inception. Variability and unpredictability of human behavior lends itself to the fullest expression at any point in time to what is commonly known as "Murphy's Law": what can go wrong, will. As project managers, it is our responsibility to make every effort to stay ahead of Mr. Murphy to the best of our ability. It is a daunting task as he affects every aspect of our sphere of activity (technological, social, political, financial, familial, cultural, intellectual, etc.).

During the implementation phase of the project, there were no risks realized. There was only one risk added to the register for the implementation phase; it could have been a project killer if realized, but this did not happen. Consequently, our ratio of risks realized to total risks identified was zero for the project implementation phase.

PROJECT RISK IDENTIFICATION FOR GOVERNMENT PROJECTS IN ANCHORAGE AND PALMER, AK

PROJECT MANAGEMENT PLAN (PMP)

AUGUST BANKS
PM 686
FALL 2014

PREPARED FOR:
UAA PM DEPARTMENT
UNIVERSITY CENTER, ROOM 155
3901 OLD SEWARD HIGHWAY
ANCHORAGE, AK 99508

VERSION HISTORY

Version #	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	August Banks Jr				First Draft
1.2	August Banks Jr	11 April 2014			First revision
1.3	August Banks Jr	26 April 2014			Second Revision
1.4	August Banks Jr	19 September 2014			Third Revision
Final	August Banks Jr	8 December 2014			Project Complete

TABLE OF CONTENTS

1 INTRODUCTION

1.1 Purpose of Project Plan

This project plan documents the project planning process and consists of the following basic tasks:

- Defining the sequence of tasks to be performed
- Identifying all deliverables associated with the project
- Defining the dependency relationship between tasks
- Scheduling all tasks to be performed
- Defining the PM executing the project
- Identifying the known project risks
- Defining the process ensuring quality of the project product
- Defining the process specifying and controlling requirements

This plan documents and defines the objectives of the project and the approach to be taken. This document contains the details required to successfully execute the project. Once project execution begins, this plan will be reviewed, baselined, and updated regularly.

2 Project Charter

2.1 Executive Summary

The objective of the project is to identify and consolidate a common core of risks associated with managing government projects via contract with the intent of reducing the likelihood that applicable risks are not overlooked or omitted from any risk analyses performed by the agencies participating in this project.

2.2 Project Purpose/Justification

2.2.1 Problem

From the moment of inception of a project, risk is a major concern. The project manager for this project realizes that project risk needs to be actively and continuously monitored throughout the project life cycle. While any number of political, administrative, technical, and project management factors may be causes to consider for cost and schedule overruns in government projects (PMBOK®, government extension, p.65), identification of the risks associated with government projects managed via contract will be our focus. Subject matter experts from the participating government agencies involved in this project (Plant Materials Center of the Alaska Department of Natural Resources (DNR/PMC) and General Services Administration (GSA)) also concur with the need for rigorous project risk management.

2.2.2 Project Objectives

The purpose of this project is to identify and consolidate a common core of risks associated with managing government projects via contracts. The primary stakeholder focus will be government program and project managers currently working with the General Services Administration (GSA) and those working with the Plant Materials Center of the Alaska Department of Natural Resources (DNR/PMC). The deliverables for this project are a paper, a risk breakdown Structure (RBS) and a risk register; the risk register will be made available for use as a checklist to identify risks associated with any future government projects. There are guides that currently exist that address risk in government projects, most notably the "Risk Management Guide for DoD Acquisition", produced by the Defense Acquisition University. This guide is known in the private as well as the public sector as a useful introductory source for risk identification and management. However, this guide does not stress the development and use of an RBS. The RBS acts as a checklist for discussion and brainstorming when identifying risks and also serves as a reference tool for managing risk throughout a project.

The Project Management Institute's (PMI's) Project Management Body of Knowledge (PMBOK©) provides a generic framework which strives to establish a uniformity across diverse industries in regard to the management of programs and projects. The PMBOK©, 5th edition, and its current government extension will serve as the foundation for a common core of risks associated with managing government projects via contract. While it is understood that the dynamic and highly unpredictable nature of risk in general precludes complete identification of all risks associated with any endeavor, our objective is to identify as many risks as possible associated with the categories identified in our RBS that are applicable to government projects managed via contract.

In order to encompass as broad a spectrum of risks as possible, a survey will be developed and distributed to government program/project managers within the Anchorage area. This survey will also serve the purpose of identifying relevant categories for the RBS. A second survey will request the ranking of the risks identified in the first survey; these risks will be provided in the form of a risk register (See Appendix B for the complete project methodology).

Once all data is collected, analyzed and processed for final presentation, the major deliverables (the RBS and the risk register) will be made available to the stakeholders.

2.3 Project Description

The project will utilize literature reviews and surveys to identify and consolidate a common core of risks associated with managing government projects via contract. The primary stakeholder focus will be government PMs associated with the DNR/PMC and the GSA. Surveys will be used to gather risk related data. Once all data is collected, analyzed and processed for final presentation, the major deliverables (the RBS and the risk register) will be available to the project stakeholders as a guide or template for developing project-specific RBS and risk registers, reducing the likelihood that applicable risks have not been overlooked or omitted from their analyses.

2.3.1 Project Objectives and Success Criteria

The objectives which mutually support the milestones and deliverables for this project have been identified. In order to achieve success on this project, the following objectives must be met within the designated time allocations:

- Quality of Project Management Process - Project management process followed and all processes documented. Specific project management knowledge areas that will be focused on and demonstrated during the project are project scope management, project stakeholder management, and project risk management.
- Within Time -- ≤ 12/9/2014
- Within Budget (Not Applicable –There are no budgetary considerations associated with this project)
- Use – Deliverables made available for project participants use at the completion of the project

2.3.2 Requirements

The Project requirements are:

- A research paper, the RBS and the risk register will be delivered to the Project Management Department along with a final presentation. All Project Progress Performance Milestones (PPMs) with their associated mandatory deliverables as determined by the Project Management Department must be completed.

The Product Requirements:

- The project product deliverables will be the paper, the RBS and the risk register to be used as a checklist for current and future government projects managed by DNR/PMC and GSA PMs in Anchorage and Palmer, AK.
- The RBS and risk register should reflect the guidelines in the PMBOK and its government extension.
- The RBS and risk register should provide value to the participating agencies in the form of identifying risks not previously identified to be used in future risk analyses, as well as serving as a sanity check against the risks identified and agreed to by both the customer and the contractor as delineated in the contractor's risk management plan.

Additional requirements may be added as necessary in accordance with the change management plan, with project sponsor approval, as the project moves forward.

2.3.3 Constraints

The following constraint pertain to this project:

- The project must be completed by or before the end of fall term 2014.

2.3.4 Assumptions

The following are a list of assumptions. Upon agreement and signature of this document, all parties acknowledge that these assumptions are true and correct:

- The project has the full support of the academic advisor, committee members, and other stakeholders.
- There is no funding required for this project
- All stakeholders will be available as needed throughout the entire project
- The Project Management Plan will be accepted and adopted so the project stays on schedule.

2.3.5 Preliminary Scope Statement

A paper, the RBS and the risk register will be delivered to the Project Management Department along with a final presentation. All Project Progress Performance Milestones (PPMs) with their associated mandatory deliverables as determined by the Project Management Department must be completed.

The project product deliverables will be the paper, the RBS and the risk register which can serve as a checklist for current and future government projects managed by DNR/PMC and GSA PMs in Anchorage and Palmer, AK.

2.4 Risks

The following risks for this project have been identified. The project manager will determine and employ the necessary risk mitigation/avoidance strategies as appropriate to minimize the likelihood of these risks:

1. The stakeholders will not be available for the duration of the project. Moderate to high probability of occurrence. Event will affect duration.
2. Change of stakeholders during the project requires re-work of the plan and change management. Moderate to high probability of occurrence. Event will affect duration and quality.
3. PM does not satisfy PM 686 PPM requirements. Moderate probability of occurrence. Event will affect duration and quality.
4. PM does not obtain Academic Advisor and committee approval ("go") for go/no go checkpoints. Moderate probability of occurrence. Event will delay the project completion.

2.5 Project Deliverables

The following deliverables must be met upon the successful completion of this project. Any changes to these deliverables must be approved by the project sponsor.

- Research Paper
- Risk Breakdown Structure (RBS)
- Risk Register

2.6 Summary Milestone Schedule

The project Summary Milestone Schedule is presented below. As requirements are more clearly defined this schedule may be modified. Any changes will be communicated through project status meetings by the project manager. **(NOTE: all summary milestone due dates below are actual completion dates as of the final PM plan update (8 Dec 2014); all were met on schedule).**

Summary Milestones	Due Date
Submission of Abstract, project charter, stakeholder register, preliminary GSP, and selection of three knowledge areas.	31 Jan 2014
Project Scope Statement, requirements documentation, WBS, preliminary Gantt chart, table of contents	21 Feb 2014
Written draft of project management plan, revised abstract, description of research methods, description of expected project deliverables, Gantt chart update	14 Mar 2014

IRB approval of research instruments and analysis, draft presentation of project objectives, charter, and project management plan. Refined description of project deliverables, refined description of three knowledge areas, updated Gantt chart	11 Apr 2014
Final presentation of approved project plan	21 April 2014
Start Project implementation	25 Aug 2014
Data gathering (survey # 1), draft RBS, risk register, revised project management plan	12 Sep 2014
Literature review/research updates, risk analysis and methodology , change control process, revised project management plan	19 Sep 2014
Data gathering (survey # 2), revised RBS, risk register, revised project management plan	3 Oct 2014
Final revision of RBS, risk register, literature review/research updates, research methodology validation, research paper preparation, revision of project management plan	10 Oct 2014
RBS, risk register complete, first draft of research paper, revised abstract	7 Nov 2014
RBS, risk register, and paper complete, deliverables provided to SMEs of participating agencies, first draft of presentation.	21 Nov 2014
Presentation/Final Project Management Plan updates/Project Finish	2 Dec 2014
Submit deliverables to ESPM department	8 Dec 2014

2.7 Summary Budget

There are no budgetary considerations for this project. This section is added to the plan for completeness and in the event certain costs are incurred due to unforeseen circumstances.

2.8 Project Approval Requirements

The RBS and risk register should provide value to the participating agencies in the form of identifying risks not previously identified to be used in future risk analyses, as well as serving as a sanity check against the risks identified and agreed to by both the customer and the contractor as delineated in the contractor's risk management plan.

2.9 Project Manager

August Banks is the Project Manager for the duration of this project. His responsibilities are to manage all project tasks, scheduling, and communication regarding the project. Mr. Banks will manage the project without a team.

2.10 Authorization

Approved by the Academic Advisor:

_____ Date: _____

Roger Hull
Chairman, Academic Committee

3 SCOPE MANAGEMENT

3.1 Work Breakdown Structure

3.1.1 Introduction

The Work Breakdown Structure presented here represents all the work required to complete this project.

3.1.2 Outline Structure

1. PM 686 Project - Risk Identification in Government Contract Projects - A R Banks
   - 1.1 Project Management
     - 1.1.1 Project Scope Statement
       - 1.1.1.1 Problem Definition
       - 1.1.1.2 Identify Objectives/goals
       - 1.1.1.3 Develop Project Charter
       - 1.1.1.4 Develop Scope Statement
       - 1.1.1.5 Develop Project Management Plan
     - 1.1.2 WBS
       - 1.1.2.1 Develop schedule
       - 1.1.2.2 Provide tracking Gantt
     - 1.1.3 Status Reports
       - 1.1.3.1 Submit status report # 1
       - 1.1.3.2 Submit status report # 2
       - 1.1.3.3 Submit status report # 3
       - 1.1.3.4 Submit status report # 4
       - 1.1.3.5 Submit status report # 5
     - 1.1.4 Meetings
       - 1.1.4.1 Attend class meeting # 1
       - 1.1.4.2 Attend class meeting # 2
       - 1.1.4.3 Attend class meeting # 3
       - 1.1.4.4 Attend class meeting # 4
       - 1.1.4.5 Attend class meeting # 5
     - 1.1.5 Closure
       - 1.1.5.1 Provide stakeholders with deliverables

- 1.1.5.2 Document lessons learned
- 1.1.5.3 Archive project documentation
- 1.1.5.4 Submit final deliverables to PM Department

1.2 Research

- 1.2.1 Literature Search
  - 1.2.1.1 Search for relevant books
  - 1.2.1.2 Google for relevant article/papers
  - 1.2.1.3 Find reference articles in Wikipedia
  - 1.2.1.4 Consolidate Literature References for Incorporation into Paper
- 1.2.2 Surveys/Analysis
  - 1.2.2.1 Perform survey # 1
  - 1.2.2.2 Perform survey # 2
  - 1.2.2.3 Perform Analysis

1.3 Project Deliverables

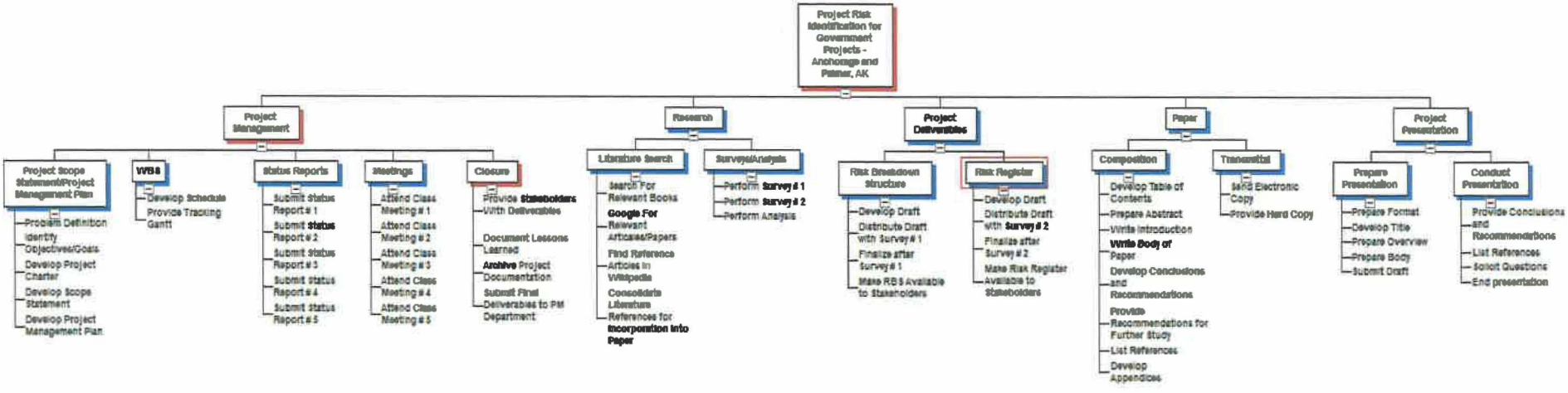
- 1.3.1 Risk Breakdown Structure (RBS)
  - 1.3.1.1 Develop Draft
  - 1.3.1.2 Distribute Draft with Survey # 1
  - 1.3.1.3 Finalize after Survey # 1
  - 1.3.1.4 Make RBS Available to Stakeholders
- 1.3.2 Risk Register
  - 1.3.2.1 Develop Draft
  - 1.3.2.2 Distribute Draft with Survey # 2
  - 1.3.2.3 Finalize after Survey # 2
  - 1.3.2.4 Make Risk Register Available to Stakeholders

1.4 Paper

- 1.4.1 Composition
  - 1.4.1.1 Develop Table of Contents
  - 1.4.1.2 Prepare abstract
  - 1.4.1.3 Write introduction
  - 1.4.1.4 Write body of paper
  - 1.4.1.5 Develop conclusions and recommendations
  - 1.4.1.6 Provide recommendations for further study
  - 1.4.1.7 List references

1.4.1.8 Develop appendices
1.4.2 Transmittal
1.4.2.1 Send electronic copy
1.4.2.2 Provide hard copy
1.5 Project Presentation
1.5.1 Prepare Presentation
1.5.1.1 Prepare Format
1.5.1.2 Develop Title
1.5.1.3 Prepare overview
1.5.1.4 Prepare body
1.5.1.5 Submit Draft
1.5.2 Conduct Presentation
1.5.2.1 Provide Conclusions and Recommendations
1.5.2.2 List References
1.5.2.3 Solicit questions
1.5.2.4 End presentation

3.1.3 _____ Tree Structure View



3.2 Change Control Management

3.2.1 Introduction

The Change Management Plan for this project set expectations on how the approach to changes will be managed, what defines a change, the purpose and role of the change control board, and the overall change management process; All stakeholders will be expected to submit or request changes to the project in accordance with this Change Management Plan and all requests and submissions will follow the process detailed herein.

3.2.2 Change Management Approach

The Change Management approach for this project will ensure that all proposed changes are defined, reviewed, and agreed upon so they can be properly implemented and communicated to all stakeholders. This approach will also ensure that only changes within the scope of this project are approved and implemented.

The Change Management approach is not to be confused with the Change Management Process which will be detailed later in this plan. The Change Management approach consists of three areas:

- Ensure changes are within scope and beneficial to the project
- Determine how the change will be implemented
- Manage the change as it is implemented

The Change Management process has been designed to make sure this approach is followed for all changes. By using this approach methodology, the PM will prevent unnecessary change from occurring and focus its resources only on beneficial changes within the project scope.

3.2.3 Definitions of Change

There are several types of changes which may be requested and considered for this project. Depending on the extent and type of proposed changes, changes to project documentation and the communication of these changes will be required to include any approved changes into the project plan and ensure all stakeholders are notified. Types of changes include:

- Scheduling Changes: changes which will impact the approved project schedule. These changes may require fast tracking, crashing, or re-baselining the schedule depending on the significance of the impact.
- Budget Changes: changes which will impact the approved project budget. As budgetary considerations are not a concern for this project, there are no expected changes unless some unforeseen event necessitates the utilization of a modest amount of funds. In the event that such a change is warranted, it will be processed in accordance with the change management process as defined in this plan.
- Scope Changes: changes which are necessary and impact the project's scope which may be the result of unforeseen requirements which were not initially planned for. These changes may also impact budget and schedule. These changes may require revision to WBS, project scope statement, and other project documentation as necessary.

The project manager must ensure that any approved changes are communicated to the project stakeholders. Additionally, as changes are approved, the project manager must ensure that the changes are captured in the project documentation where necessary. These document updates must then be communicated to the project team and stakeholders as well.

3.2.4 Change Control Board

The Change Control Board (CCB) is the approval authority for all proposed change requests pertaining to this project. The purpose of the CCB is to review all change requests, determine their impacts on the project risk, scope, cost, and schedule, and to approve or deny each change request. The following chart provides a list of the CCB members for this project:

Name	Position	CCB Role
Roger Hull	Academic Advisor	CCB Chair
Walter Almon	Committee Member	CCB Member
James Bates	Committee Member	CCB Member
August Banks Jr.	Project Manager	CBB Member

As change requests are submitted to the PM by the stakeholders, the PM will log the requests in the change log and the CCB will convene as appropriate to review all change requests. For a change request to be approved, all CCB members must vote in favor. In the event more information is needed for a particular change request, the request will be deferred and sent back to the requestor for more information or clarification. If a change is deemed critical, an ad hoc CCB meeting can be called in order to review the change prior to the next scheduled CCB meeting.

3.2.5 Roles and Responsibilities

The following are the roles and responsibilities for all change management efforts related to this project:

Academic advisor:

- Approve all changes to budget/funding allocations (N/A)
- Approve all changes to schedule baseline
- Approve any changes in project scope
- Chair the CCB

Project Manager:

- Receive and log all change requests from project stakeholders
- Conduct preliminary risk, cost, schedule, scope analysis of change prior to CCB
- Seek clarification from change requestors on any open issues or concerns
- Make documentation revisions/edits as necessary for all approved changes
- Participate on CCB

Committee Members/Stakeholders:

- Submit all change requests on standard organizational change request forms

- Provide all applicable information and detail on change request forms
- Be prepared to address questions regarding any submitted change requests
- Provide feedback as necessary on impact of proposed changes

3.2.6 Change Control Process

The Change Control Process for this project will follow the organizational standard change process for all projects. The project manager has overall responsibility for executing the change management process for each change request.

1) Identify the need for a change (Stakeholders) – Change requestor will submit a completed change request form to the project manager.
2) Log change in the change request register (Project Manager) – The project manager will keep a log of all submitted change requests throughout the project's lifecycle.
3) Evaluate the change (Project Manager, Requestor) – The project manager will conduct a preliminary analysis on the impact of the change to risk, (cost), schedule, and scope and seek clarification from team members and the change requestor.
4) Submit change request to CCB (Project Manager) – The project manager will submit the change request, as well as the preliminary analysis, to the CCB for review.
5) Obtain Decision on change request (CCB) – The CCB will discuss the proposed change and decide whether or not it will be approved based on all submitted information.
6) Implement change (Project Manager) – If a change is approved by the CCB, the project manager will update and re-baseline project documentation as necessary.

NOTE: See Appendix H for the Change log and the approved change request generated by this project.

3.2.7 Change Control Forms

Change Form	Purpose
Change Request Form.docx	Utilized for submitting any request for changes to the project scope, statement of work, or design documentation.

3.3 Academic Advisor Acceptance

Approved by the Academic Advisor:

_____ Date: _____

Roger Hull
Chairman, Academic Committee

4 SCHEDULE/TIME MANAGEMENT

4.1 Introduction

The project schedule is the roadmap for how the project will be executed. Schedules are an important part of any project as they provide the project team, sponsor, and stakeholders a picture of the project's status at any given time. The purpose of the schedule management plan is to define the approach the PM will use in creating the project schedule. This plan also includes how the PM will monitor the project schedule and manage changes after the baseline schedule has been approved. This includes identifying, analyzing, documenting, prioritizing, approving or rejecting, and publishing all schedule-related changes.

4.2 Schedule Management Approach

Project schedules will be created using MS Project 2010 starting with the deliverables identified in the project's Work Breakdown Structure (WBS). Activity definition will identify the specific work packages which must be performed to complete each deliverable. Activity sequencing will be used to determine the order of work packages and assign relationships between project activities. Activity duration estimating will be used to calculate the number of work periods required to complete work packages.

Once a preliminary schedule has been developed, it will be reviewed by the PM and the committee members. The PM and committee members must agree to the proposed work package assignments, durations, and schedule. Once this is achieved the academic advisor will review and approve the schedule and it will then be baselined.

The following will be designated as milestones for the project schedule:

- Completion of scope statement and WBS
- Baselined project schedule
- Project implementation
- Acceptance of final deliverables

Roles and responsibilities for schedule development are as follows:

- The project manager will be responsible for facilitating work package definition, sequencing, and estimating duration and resources. The project manager will also create the project schedule using MS Project 2010 and validate the schedule with the academic advisor. The project manager will obtain schedule approval from the academic advisor and baseline the schedule.
- The academic advisor will participate in reviews of the proposed schedule and approve the final schedule before it is baselined.

4.3 Schedule Control

The project schedule will be reviewed and updated as necessary on a weekly basis with actual start, actual finish, and completion percentages which will be provided by the PM.

The PM is responsible for reviewing weekly schedule updates/reviews; determining impacts of schedule variances; submitting schedule change requests; and reporting schedule status in accordance with the project's communications plan.

The academic advisor will maintain awareness of the project schedule status and review/approve any schedule change requests submitted by the PM.

4.4 Schedule Changes and Thresholds

If any stakeholder determines that a change to the schedule is necessary, the PM will review and evaluate the change. The PM must determine which tasks will be impacted, variance as a result of the potential change, and any alternatives or variance resolution activities they may employ to see how they would affect the scope, schedule, and resources. If, after this evaluation is complete, the PM determines that any change will exceed the established boundary conditions, then a schedule change request must be submitted.

Submittal of a schedule change request to the academic advisor for approval is required if either of the two following conditions is true:

- The proposed change is estimated to reduce the duration of an individual work package by 10% or more, or increase the duration of an individual work package by 10% or more.
- The change is estimated to reduce the duration of the overall baseline schedule by 10% or more, or increase the duration of the overall baseline schedule by 10% or more.

Any change requests that do not meet these thresholds may be submitted to the PM for approval.

Once the change request has been reviewed and approved the project manager is responsible for adjusting the schedule and communicating all changes and impacts to the academic advisor and other stakeholders. The PM must also ensure that all change requests are archived in the project records repository. **NOTE: There was only one change request submitted and approved during the implementation of the project; consequently, it, along with the change log is depicted in Appendix H.**

4.5 Scope Change

Any changes in the project scope, which have been approved by the academic advisor, will require the PM to evaluate the effect of the scope change on the current schedule. If the project manager determines that the scope change will significantly affect the current project schedule, he may request that the schedule be re-baselined in consideration of any changes which need to be made as part of the new project scope. The academic advisor must review and approve this request before the schedule can be re-baselined.

4.6 Academic Advisor Acceptance

Approved by the Academic Advisor:

_____ Date: _____

Roger Hull
Chairman, Academic Committee

5 QUALITY MANAGEMENT

(NOTE: Only sections 5.1 through 5.4 of this subsidiary plan will be used in the project – arb, 11 April 2014)

5.1 Introduction

The Quality Management Plan for this project will establish the activities, processes, and procedures for ensuring a quality product upon the conclusion of the project. The purpose of this plan is to:

- Ensure quality is planned
- Define how quality will be managed
- Define quality assurance activities
- Define quality control activities
- Define acceptable quality standards

5.2 Quality Management Approach

The quality management approach for this project will ensure quality is planned for both the product and processes. In order to be successful, this project will meet its quality objectives by utilizing an integrated quality approach to define quality standards, measure quality and continuously improve quality.

Product quality for this project will be defined by the guidelines as delineated in the current version of the PMBOK© and its government extension.

Process quality for this project will focus on three knowledge areas (Scope, Risk, and Stakeholder Management) by which the project deliverables will be produced. Establishing process quality standards will ensure that all activities result in the successful delivery of the product.

Metrics will be established and used to measure quality throughout the project life cycle for the product and processes. The PM will be responsible for defining these metrics, conducting measurements, and analyzing results. These product and process measurements will be used as one criterion in determining the success of the project and must be reviewed by the project sponsor. Metrics will include:

- Schedule
- Stakeholder Satisfaction

Quality improvements can be identified by any stakeholder associated with the project. Each recommendation will be reviewed to determine how the improvement will impact the product or processes. If an improvement is implemented the project manager will update all project documentation to include the improvement.

5.3 Quality Requirements / Standards

5.3.1 Product Quality:

Product quality for this project will be defined by the guidelines as delineated in the current version of the PMBOK® and its government extension.

5.3.2 Process Quality:

The process quality standards and requirements will be defined by the guidelines as delineated in the current version of the PMBOK® and its government extension. These standards will be communicated to all project stakeholders.

As product components are completed, the process metrics will be measured and analyzed to determine the quality of the process. Once the product meets quality compliance and all process metrics fall within acceptable quality assurance margins, we will achieve process compliance for the project.

5.4 Quality Assurance

The quality assurance of this project focuses on the processes used in the design and installation of the product. In order to ensure quality, an iterative quality process will be used throughout the project life cycle. This iterative process includes measuring process metrics, analyzing process data, and continuously improving the processes.

The PM and will perform assessments at planned intervals throughout the project to ensure all processes are being correctly implemented and executed. The key performance metric for this project is schedule variance. The table below provides the key quality assurance metrics for this project.

Critical Success Criteria	Quality Metrics	Assessment Interval
Schedule Baseline	- Cost Performance Index (CPI) with a positive number - CPI .85 or higher - Percent of Overdue Project Tasks ≤ 15%	Weekly
Change Management Plan	- Number of Change Orders / DCVR to project scope: six change orders for the entire project	Weekly
Risk Management	- Percentage of risks realized to risks identified ≤ 50%	Weekly
Stakeholder Management	- Stakeholder turnover rate ≤ 50% - Ratio of stakeholder requirements changes to requirements baseline ≤ 66%	Weekly
	-	

5.3 Quality Requirements / Standards

5.3.1 Product Quality:

Product quality for this project will be defined by the guidelines as delineated in the current version of the PMBOK® and its government extension.

5.3.2 Process Quality:

The process quality standards and requirements will be defined by the guidelines as delineated in the current version of the PMBOK® and its government extension. These standards will be communicated to all project stakeholders.

As product components are completed, the process metrics will be measured and analyzed to determine the quality of the process. Once the product meets quality compliance and all process metrics fall within acceptable quality assurance margins, we will achieve process compliance for the project.

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Change Management Plan	- Number of Change Orders / DCVR to project scope: six change orders for the entire project	Weekly
Risk Management	- Percentage of risks realized to risks identified ≤ 50%	Weekly
Stakeholder Management	- Stakeholder turnover rate ≤ 50% - Ratio of stakeholder requirements changes to requirements baseline ≤ 66%	Weekly
	-	

The PM will provide day to day quality management and conduct process audits on a weekly basis, monitor process performance metrics, and assure all processes comply with project standards. If discrepancies are found, the PM will meet with the appropriate stakeholder(s) and review the identified discrepancies.

The PM will regularly review project processes, any discrepancies and/or audit findings and discuss process improvement initiatives with the affected stakeholders.

Process improvement is another aspect of quality assurance. Quality assurance reviews, findings, and assessments should always result in some form of process improvement and, as a result, product improvement. All process improvement efforts must be documented, implemented, and communicated to all stakeholders as changes are made.

5.5 Quality Control

The quality control of this project focuses primarily on the project product and the acceptable standards and performance. Additionally, all physical measurements will be conducted before acceptance of each product deliverable to ensure compliance with established quality standards. The table below illustrates all performance and physical quality standards for this Product:

Specific product quality control measurements will be determined once the preliminary designs have been finalized and updated as needed and documented below.

Product	Physical/Performance Standards	Quality Assessment Activities	Assessment Intervals

The Project Manager will schedule regularly occurring project, management, and document reviews. In these reviews, an agenda item will include a review of products, any discrepancies and/or audit findings from the stakeholders, and a discussion on product improvement initiatives.

5.6 Quality Control Measurements

All project products and processes must be measured and fall within the established standards and tolerances. The below logs will be used by the project and quality teams in conducting these measurements and will be maintained for use as supporting documentation for the project's acceptance.

5.6.1 Quality Assurance Log

Trial #	Date	Process Measured	Required Value	Actual Measured	Acceptable? (Y/N)	Recommendation	Date Resolved

5.6.2 Quality Control Log

Cable #	Date	Item Measured	Required Value	Actual Measured	Acceptable? (Y/N)	Recommendation	Date Resolved

5.7 Academic Advisor Acceptance

Approved by the Academic Advisor:

_____ Date: _____

Roger Hull
Chairman, Academic Committee

6 STAKEHOLDER AND COMMUNICATIONS MANAGEMENT

6.1 Introduction

This stakeholder and Communications Management Plan sets the communications framework for this project. It will serve as a guide for communications throughout the life of the project and will be updated as communication needs change. This plan identifies and defines the roles of stakeholders involved in this project. It also includes a communications matrix which maps the communication requirements of this project. An in-depth guide for conducting meetings details the communications rules and how the meetings will be conducted, ensuring successful meetings. A stakeholder register is included as an appendix (appendix F) to the project plan to provide contact information for all stakeholders directly involved in the project. **NOTE: See the Project Management Journal (Appendix I) for the post-project review of this section of the project management plan.**

6.2 Communications Management Approach

The PM will take a proactive role in ensuring effective communications on this project. The communications requirements are documented in the Communications Matrix presented in this document. The Communications Matrix will be used as the guide for what information to communicate, who is to do the communicating, when to communicate it and to whom to communicate.

As with most project plans, updates or changes may be required as the project progresses or changes are approved. Changes or updates may be required due to changes in stakeholders, scope, schedule, or other reasons. Additionally, updates may be required as the project matures and additional requirements are needed. The PM is responsible for managing all proposed and approved changes to the communications management plan. Once the change is approved, the project manager will update the plan and supporting documentation and will distribute the updates to the project team and all stakeholders. This methodology is consistent with the project's Change Management Plan and ensures that all project stakeholders remain aware and informed of any changes to communications management.

6.3 Communications Management Constraints

All project communication activities will occur within the project's approved schedule. The PM is responsible for ensuring that communication activities are performed without external resources. Communication activities will occur in accordance with the frequencies detailed in the Communication Matrix in order to ensure the project adheres to schedule constraints. Any deviation of these timelines may result in schedule delays and must be approved by the Academic Advisor.

Standardized formats and templates must be used for all formal project communications where applicable.

This project does not entail the collection, use or distribution of confidential information. The PM is responsible for ensuring that any such information is handled through the appropriate channels and/or individuals should it be identified as such.

6.4 Stakeholder Communication Requirements

As part of identifying all project stakeholders, the project manager will communicate with each stakeholder in order to determine their preferred frequency and method of communication. This feedback will be maintained by the project manager in the project's Stakeholder Register. Standard project communications will occur in accordance with the Communication Matrix; however, depending on the identified stakeholder communication requirements, individual communication is acceptable and within the constraints outlined for this project.

In addition to identifying communication preferences, stakeholder communication requirements must identify the project's communication channels and ensure that stakeholders have access to these channels.

Once all stakeholders have been identified and communication requirements are established, the PM will maintain this information in the project's Stakeholder Register and use this, along with the project communication matrix as the basis for all communications.

6.5 Roles

6.5.1 Academic Advisor

The Academic Advisor is the mentoring agent of the project and has authorized the project by signing the project charter. This person is responsible for facilitating the successful completion of the project. Since the Academic Advisor is at the senior level communications should be presented in summary format unless the Academic Advisor requests more detailed communications.

6.5.2 Project Manager

The PM has overall responsibility for the execution of the project. The PM manages day to day resources, provides project guidance and monitors and reports on the projects metrics as defined in the Project Management Plan. As the person responsible for the execution of the project, the Project Manager is the primary communicator for the project distributing information according to this Communications Management Plan.

6.5.3 Key Stakeholders

Normally Stakeholders includes all individuals and organizations who are impacted by the project. For this project we are defining a subset of the stakeholders as Key Stakeholders. These are the stakeholders with whom we need to communicate with and are not included in the other roles defined in this section. The Key Stakeholders includes SMEs with an interest in the project.

6.5.4 Change Control Board

The Change Control Board is a designated group which reviews technical specifications and authorizes changes within the project framework. Technical design documents, user impact analysis and implementation strategies are typical of the types of communication this group requires.

6.5.5 Project Team

The Project Team is comprised of all persons who have a role performing work on the project. The project team needs to have a clear understanding of the work to be completed and the framework in which the project is to be executed. Since the Project Team is responsible for completing the work for the project they played a key role in creating the Project Plan including defining its schedule and work packages. The Project Team requires a detailed level of communications which is achieved through day to day interactions with the Project Manager and other team members along with weekly team meetings.

6.6 Project Team Directory

The following table presents contact information for all persons identified in this communications management plan. The email addresses and phone numbers in this table will be used to communicate with these people.

Role	Name	Title	Organization/ Department	Email	Phone
Academic Advisor	Roger Hull	Chairman, Academic Committee	PM School Academic Committee	rkhull@alaska.edu	(907) 786-1923
Project Manager	August Banks Jr.	Project Manager	PMO	arbanksjr@alaska.edu	(907) 360-2122
Project Stakeholders	See Stakeholder Register	See Stakeholder Register	See Stakeholder Register	See Stakeholder Register	See Stakeholder Register

6.7 Communication Methods and Technologies

The PM will determine the communication methods and technologies based on several factors to include: stakeholder communication requirements and available technologies (internal and external).

The PM is responsible for developing, maintaining, and communicating schedules using MS Project software. GANTT and PERT Charts are the preferred format for communicating schedules to stakeholders.

All project communication and documentation will be archived on an external drive located in a secure location.

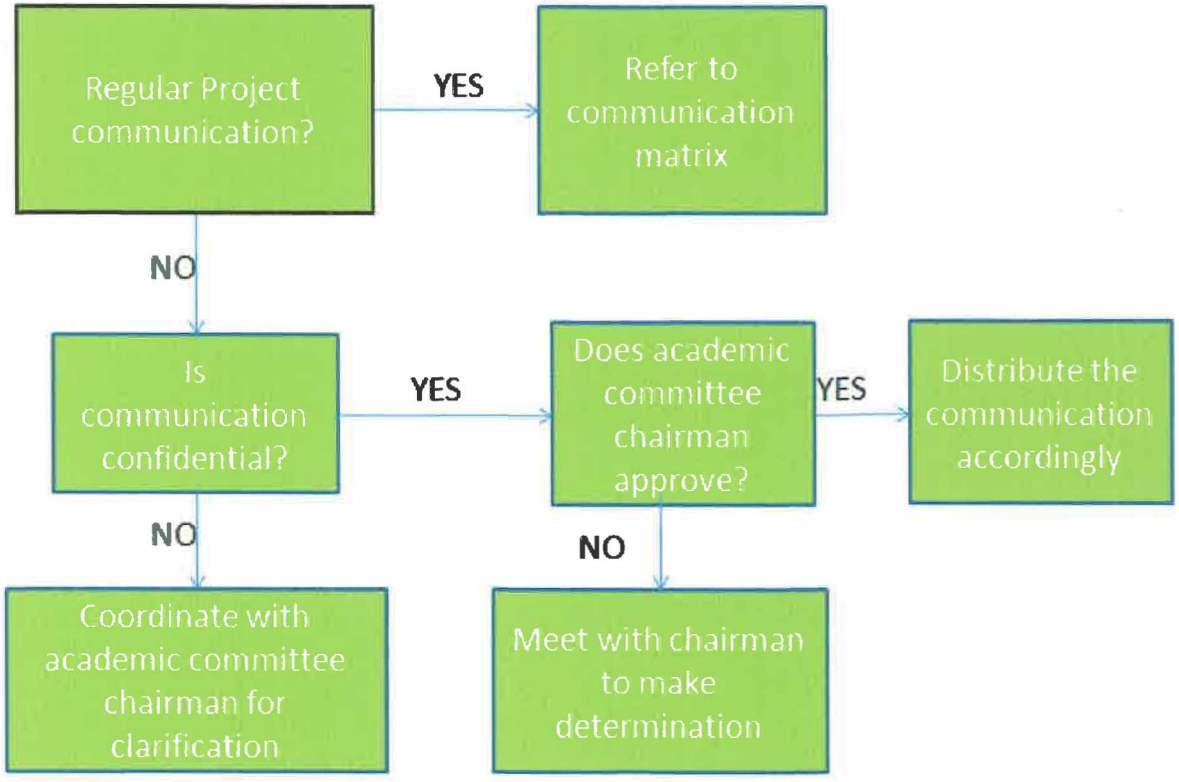
6.8 Communications Matrix

The following table identifies the communications requirements for this project.

Communication Type	Objective of Communication	Medium	Frequency	Audience	Owner	Deliverable	Format
Kickoff Meeting	Introduce the stakeholders and the project. Review project objectives and management approach.	• Conference Call	Once	• Academic Advisor • Academic Committee • Stakeholders	Project Manager	• Agenda • Meeting Minutes	• Soft copy archived on project external drive
Weekly Project Status Meetings	Report on the status of the project to management.	• Face-to-face • Phone	Weekly	• Academic Advisor	Project Manager	• Slide updates • Project schedule	• Soft copy archived on project external drive
Project Status Reports	Report the status of the project including activities, progress, and other issues.	• Email	Monthly	• Academic Advisor • Academic Committee • Stakeholders	Project Manager	• Project Status Report • Project schedule	• Soft copy archived on project external drive

6.9 Communication Flowchart

The communication flowchart below was created to aid in project communication. This flowchart provides a framework for the project team to follow for this project. However, there may be occasions or situations which fall outside of the communication flowchart where additional clarification is necessary. In these situations the Project Manager is responsible for discussing the communication with the academic committee chairman and making a determination on how to proceed.



6.10 Guidelines for Meetings

6.10.1 Meeting Agenda

Meeting Agenda will be distributed 5 business days in advance of the meeting. The Agenda should identify the presenter for each topic along with a time limit for that topic. The first item in the agenda should be a review of action items from the previous meeting.

6.10.2 Meeting Minutes

Meeting minutes will be distributed within 2 business days following the meeting. Meeting minutes will include the status of all items from the agenda along with new action items and the Parking Lot list.

6.10.3 Action Items

Action Items are recorded in both the meeting agenda and minutes. Action items will include both the action item along with the owner of the action item. Meetings will start with a review of the status of all action items from previous meetings and end with a review of all new action items resulting from the meeting. The review of the new action items will include identifying the owner for each action item.

6.10.4 Meeting Chair Person

The Chair Person is responsible for distributing the meeting agenda, facilitating the meeting and distributing the meeting minutes. The Chair Person will ensure that the meeting starts and ends on time and that all presenters adhere to their allocated time frames.

6.10.5 Note Taker

The Note Taker is responsible for documenting the status of all meeting items, maintaining a Parking Lot item list and taking notes of anything else of importance during the meeting. The Note Taker will give a copy of their notes to the Chair Person at the end of the meeting as the Chair Person will use the notes to create the Meeting Minutes.

6.10.6 Time Keeper

The Time Keeper is responsible for helping the facilitator adhere to the time limits set in the meeting agenda. The Time Keeper will let the presenter know when they are approaching the end of their allocated time. Typically a quick hand signal to the presenter indicating how many minutes remain for the topic is sufficient.

6.10.7 Parking Lot

The Parking Lot is a tool used by the facilitator to record and defer items which aren't on the meeting agenda; however, merit further discussion at a later time or through another forum. A parking lot record should identify an owner for the item as that person will be responsible for ensuring follow-up. The Parking Lot list is to be included in the meeting minutes.

6.11 Communication Standards

Formal project communications are detailed in the project's communication matrix and include:

Kickoff Meeting – PM-generated templates for meeting agenda and meeting minutes. Additionally, any slides presented will use the PM-generated slideshow template.

Project Team Meetings – PM-generated templates for meeting agenda and meeting minutes. Additionally, any slides presented will use the PM-generated slideshow template.

Monthly Project Status Meetings - PM Department-generated template will be used. Additionally, any slides presented will use the PM Department-generated slideshow template.

Project Status Reports – PM will utilize the PM Department standard template for meetings. The PM Department-generated project status report document will be used to provide project status.

Informal project communications should be professional and effective but there is no standard template or format that must be used.

6.12 Communication Escalation Process

Efficient and timely communication is the key to successful project completion. As such, it is imperative that any disputes, conflicts, or discrepancies regarding project communications are resolved in a way that is conducive to maintaining the project schedule, ensuring the correct communications are distributed, and preventing any ongoing difficulties. In order to ensure projects stay on schedule and issues are resolved, the PM will use a standard escalation model to provide a framework for escalating communication issues. The table below defines the priority levels, decision authorities, and timeframes for resolution.

Priority	Definition	Decision Authority	Timeframe for Resolution
Priority 1	Major impact to project or business operations. If not resolved quickly there will be a significant adverse impact to schedule.	Academic Advisor	Within 4 hours
Priority 2	Medium impact to project or business operations which may result in some adverse impact to schedule.	Academic Advisor or Committee Member	Within one business day
Priority 3	Slight impact which may cause some minor scheduling difficulties with the project but no impact to business operations or revenue.	Academic Advisor or Committee Member	Within two business days

Priority 4	Insignificant impact to project but there may be a better solution.	Project Manager	Work continues and any recommendations are submitted via the project change control process

** NOTE: Any communication including sensitive and/or confidential information will require escalation to Academic Advisor level approval prior to external distribution.

6.13 Glossary of Communication Terminology

Term	Definition
Communication	The effective sending and receiving of information. Ideally, the information received should match the information sent. It is the responsibility of the sender to ensure this takes place.
Stakeholder	Individuals or groups involved in the project or whose interests may be affected by the project's execution or outcome.
Communications Management Plan	Portion of the overall Project Management Plan which details how project communications will be conducted, who will participate in communications, frequency of communications, and methods of communications.
Escalation	The process which details how conflicts and issues will be passed up the management chain for resolution as well as the timeframe to achieve resolution.

6.14 Academic Advisor Acceptance

Approved by the Academic Advisor:

_____ Date: _____

Roger Hull
Chairman, Academic Committee

7 RISK MANAGEMENT

NOTE: Issues related to risk management are addressed in the "Selected Knowledge Areas" document submitted electronically via CD and zip file. A hard copy of the document was also posted to the project binder submitted to the ESPM department.

7.1 Introduction

As organizations begin new projects they begin operating in an area of uncertainty that comes along with developing new and unique products or services. By doing so, these organizations take chances which results in risk playing a significant part in any project. The purpose of the risk management plan is to establish the framework in which the PM will identify risks and develop strategies to mitigate or avoid those risks.

Before risk management begins it is imperative that a foundation is established for providing structured project information, thus, the following project elements were completed and defined prior to developing this Risk Management Plan:

- Define work scope, schedule, and resources
  - Develop project WBS
  - Develop master schedule
  - Establish performance measurement metrics
- Define minimum and maximum baseline thresholds
  - Schedule
- Baseline reporting requirements
  - Format
  - Frequency of distribution
  - Distribution list
- Define Risk Management Roles and Responsibilities
  - Project Manager chairs the risk assessment meetings
  - Academic Advisor participates in risk assessment meetings and Academic Committee members serve as meeting recorder and timekeeper
  - Key stakeholders participate in risk assessment meetings

7.2 Top Three Risks

The top three high probability and high impact risks to this project are:

Unavailability of Key Stakeholders to participate during Project Execution
Due to factors beyond their control, the key stakeholders may not be available to participate at various times during project execution. The PM will mitigate this risk by making the corresponding schedule changes commensurate with stakeholder availability.

Unanticipated Change in Scope during Project Execution
During the project, should any unanticipated change in scope occur that could affect the successful completion of the project, the project manager will call for an ad hoc meeting of the CCB to address the change in scope. The project manager will mitigate this risk by having the requirements presented as early as possible to the academic committee for acceptance. The response measure will be to provide the necessary resources that can act as temporary support.

Insufficient or incomplete deliverables preventing completion of PPMs
Not providing deliverables in a timely manner can cause notable schedule issues. The PM will mitigate this risk by closely monitoring the requirements of each PPM.

7.3 Risk Management Approach

The approach taken to manage risks for this project included a methodical process by which the PM identified, scored, and ranked the various risks. The PM will provide status updates on the risks in the monthly meetings, but only when the meetings coincide with the risk's window of concern. Upon the completion of the project, during the closing process, the project manager will analyze each risk as well as the risk management process. Based on this analysis, the project manager will identify any improvements that can be made to the risk management process for future projects. These improvements will be captured as part of the lessons learned knowledge base.

7.4 Risk Identification

For this project, initial risk identification was performed by the PM.

7.5 Risk Qualification and Prioritization

In order to determine the severity of the risks identified by the PM, a probability and impact factor was assigned to each risk. This process allowed the project manager to prioritize risks based upon the effect they may have on the project.

7.6 Risk Monitoring

The most likely and greatest impact risks have been added to the project plan to ensure that they are monitored during the time the project is exposed to each risk. At the appropriate time in the project schedule a Risk Manager (the PM) is assigned to each risk. During the periodic project status meeting the PM will discuss the status of that risk; however, only risks which fall in the current time period will be discussed. Risk monitoring will be a continuous process throughout the life of this project. As risks approach on the project schedule the project manager will ensure that the appropriate risk manager provides the necessary status updates which include the risk status, identification of trigger conditions, and the documentation of the results of the risk response.

7.7 Risk Mitigation and Avoidance

The PM has developed responses to each identified risk. As more risks are identified, they will be qualified and the PM will develop avoidance and mitigation strategies. These risks will also be added to the Risk Register and the project plan to ensure they are monitored at the appropriate times and are responded to accordingly.

The risks for this project will be managed and controlled within the constraints of time and scope. All identified risks will be evaluated in order to determine how they affect these constraints. The PM will determine the best way to respond to each risk to ensure compliance with these constraints.

7.8 Risk Register

The Risk Register (Appendix G) for this project is a log of all identified risks, their probability and impact to the project, the response, and mitigation strategy. The PM assigned each risk a score based on the probability of it occurring and the impact it could potentially have. The Risk Register also contains the risk response as well as the mitigation strategy.

Each risk has been added to the project plan. At the appropriate time in the plan—prior to when the risk is most likely to occur—the PM will ensure adherence to the agreed upon mitigation strategy. The PM will provide the status of each risk at the periodic project status meeting for the risk's anticipated timeframe.

The Risk Register will be maintained as an appendix to this Project Plan.

7.9 Academic Advisor Acceptance

Approved by the Academic Advisor:

_____ Date: _____

Roger Hull
Chairman, Academic Committee

8 PROJECT CLOSURE

8.1 Lessons Learned

8.1.1 Introduction

NOTE: Lessons learned are documented in a separate stand-alone document and is located on the CD accompanying the tabbed binder submitted to the ESPM department (the binder also contains a hard copy of the lessons learned). ARB – 8 Dec 2014.

The purpose of the lessons learned document for this Project is to capture the project's lessons learned in a formal document for use by other project managers on similar future projects. This document may be used as part of new project planning for similar projects in order to determine what problems occurred and how those problems were handled and may be avoided in the future. Additionally, this document details what went well with the project and why, so that other project managers may capitalize on these actions. Project managers may also use this document to determine who the project team members were in order to solicit feedback for planning their projects in the future. This document will be formally communicated with the stakeholders and will become a part of the project assets and archives.

8.1.2 Lessons Learned Approach

The lessons learned from this project are compiled from project journal entries throughout the project lifecycle. Lessons learned will also be gathered from both realized and unrealized risks in the project risk register as well as through interviews with other stakeholders as necessary. The lessons learned from this project are to be used as references for future projects and contain an adequate level of detail so that other project managers may have enough information on which to help base their project plans. The lessons learned in this document are categorized by project knowledge area. These knowledge areas consist of: risk management, scope management, schedule management stakeholder management, and communications management. NOTE: some knowledge areas may not contain lessons learned if none were documented throughout the project lifecycle.

8.1.3 Lessons Learned from this Project

The following chart lists the lessons learned for this project. These lessons are categorized by project knowledge area and descriptions, impacts, and recommendations are provided for consideration on similar future new construction projects. It is important to note that not only failures or shortcomings are included but successes as well.

Category	Issue Name	Problem/Success	Impact	Recommendation
Scope Management				
Schedule Management				
Risk Management				

Stakeholder Management
Communications Management

8.1.4 Lessons Learned Knowledge Base / Database

The lessons learned for this project will be contained in the organizational lessons learned knowledge base maintained on the project external storage device (CD). This information will be cataloged under the project's year (2014) and the type of project (PM 686) for future reference. This information will be valuable for any project manager assigned to a new PM 686 project in the future.

8.1.5 Process Improvement Recommendations

To be completed as part of lessons learned during project closeout.

9 PROJECT ACCEPTANCE

9.1 Academic Advisor Acceptance

August Banks
PM 686

9 PROJECT ACCEPTANCE

PM 686 PROJECT

This document establishes formal acceptance of all the deliverables for the PM 686 project. This project has met all the acceptance criteria as documented in the "requirements" and "expectations" columns of the stakeholder register (Appendix F of this plan) and the project scope statement (section 2.3.5 of this plan). A project audit has been performed to verify that all deliverables meet the project and product requirements.

All deliverables as documented in this plan with the exception of formal project closeout procedures have been completed. The points of contact of the participating agencies (GSA and PMC/DNR) have accepted all final deliverables.

The formal close out of this project will be conducted by the PM. The closeout process will include a post-project review, submittal of final project deliverables to the ESPM Department, and archival of all relevant project documents. Once the closing process is completed the Academic Advisor will be notified and the PM will then be released from the project.

9.1 Academic Advisor Acceptance

Approved by the Academic Advisor:

Date: 2 December 2014

Roger Hull
Chairman, Academic Committee

NOTE: The project deliverables were submitted to the POCs of the participating agencies on 21 November 2014. The documentation below verifies the submission of the deliverables as well as the confirmation (on 25 Nov 2014) by the POCs of the participating agencies that the deliverables met the objectives agreed upon at the beginning of the project:

August Banks <abanksjr@alaska.edu>
To Drew, Brianne

Nov 21 (8 days ago)

Brianne and Drew:

Attached are my deliverables for the project. Please go through everything and let me know in particular if the "contributions" section of the paper reflects the objectives I presented you both with from the beginning. Your feedback is most welcome. Again, thank you both for your support. Without you, there would have been no project.

Very respectfully,

August

9-1

August Banks
PM 686

Drew Wareham - 10PSNR Nov 25 (4 days ago)
to me Brianne -

August,

Thank you for the information. The deliverables you presented have met objectives agreed upon at the beginning of the project. We (GSA) will analyze them and use them to help in managing future risks.

Thank you for all of your efforts and best of luck to you in all of your future endeavors.

V/R

Drew

Andrew J. Wareham
Client Resources Manager
Northern Service Center
GSA, PBS, Northwest/Arctic Region
222 West 7th Ave Box 5
Anchorage, Alaska 99513
907.271.1549 Office
907.903.7677 Mobile
907.271.3086 Fax
andrew.wareham@gsa.gov

Brianne Blackburn Nov 25 (4 days ago)
to me Drew -

Hi August,

Thanks for the opportunity to provide feedback. I agree with Drew-the objectives align with the earlier discussion and project direction. I appreciated seeing the similarities and differences in data from our two organizations.

I'm not sure where you are in your overall editing process (so feel free to take or leave this feedback) but the colored charts you presented had some layout issues on my end. Could be my mobile display but several of the data labels overlapped, and a few categories had a number with no description.

Congratulations on getting to this point! Good luck with the final presentation and your completion of the program. I really appreciated your structured and consistent communication.

Thanks,
Brianne

Sent from Mailbox

9-2

10 APPENDIX A: PROJECT ABSTRACT AND KEY WORDS

Project Abstract: Project Risk Identification for Government Projects in Anchorage and Palmer, AK

Problem:

From the moment of inception of a project, risk is a major concern. The project manager for this project realizes that project risk needs to be actively and continuously monitored throughout the project life cycle. While any number of political, administrative, technical, and project management factors may be causes to consider for cost and schedule overruns in government projects (PMBOK®, government extension, p.65), identification of the risks associated with government projects managed via contract will be our focus. Subject matter experts from the participating government agencies involved in this project (Plant Materials Center of the Alaska Department of Natural Resources (DNR/PMC) and General Services Administration (GSA)) also concur with the need for rigorous project risk management.

Project objectives:
The purpose of this project is to identify and consolidate a common core of risks associated with managing government projects via contracts. The primary stakeholder focus will be government program and project managers associated with the GSA and DNR/PMC located in Anchorage and Palmer, respectively. The deliverables for this project will be a paper, a risk breakdown structure (RBS) and a risk register; the risk register will be available for use as a checklist to identify risks associated with any future projects. There are guides that currently exist that address risk in government projects. We have found in preliminary research that they do not stress the development of an RBS. The RBS acts as a checklist for discussion and brainstorming when identifying risks and also serves as a reference tool for managing risk throughout a project.

The Project Management Institute's (PMI's) Project Management Body of Knowledge (PMBOK®) provides a generic framework which strives to establish uniformity across diverse industries in regard to the management of programs and projects. The PMBOK®, 5th edition, and its current government extension serve as the foundation for identification of a common core of risks associated with managing government projects via contract. While it is understood that the dynamic nature of risk in general precludes complete identification of all risks associated with any endeavor, our objective is to identify as many risks as possible associated with the categories identified in our RBS that are applicable to government projects managed via contract.

In order to encompass as broad a spectrum of risks as possible, two surveys will be developed and distributed to government program and project managers at the DNR/PMC and GSA. The first survey requests the identification of positive and negative risk items common to government projects accomplished via contracts. A draft Risk Breakdown structure (RBS) will be used to place the identified risks into appropriate

categories and it will contain sample risks for some of the categories. The participants will also be asked to review the RBS for completeness and comprehensiveness of categories. The second survey will request the ranking of the risks identified in the first survey; these risks will be provided in the form of a risk register. Once all data is collected, analyzed and processed for final presentation, the major deliverables (the RBS and the risk register) will be available to the project stakeholders as a guide or template for developing project-specific RBS and risk registers, reducing the likelihood that applicable risks have not been overlooked or omitted from their analyses.

Key Word Searches:
Government Project Management
DoD Project Management
Department of Defense
Project Management in Government Agencies
Cost and Schedule overruns in Government Projects
Risk Register
Risk Breakdown Structure
Department of Defense Project Management
Federal Acquisition Regulation
Code of Federal Regulations
Sarbanes-Oxley Act

August Banks
PM 686

11 APPENDIX B: PROJECT RESEARCH METHODOLOGY

Project Risk Identification for Government Projects in Anchorage and Palmer, AK: Research Methodology

Data Collection:

Both survey instruments will be sent via email to the points of contact (POCs) in both the Plant Materials Center of the Alaska Department of Natural Resources (DNR) and the General Services Administration (GSA) who will in turn distribute the surveys to the appropriate PM personnel. Once completed, the POCs will return the completed surveys to the researcher for processing; this method ensures the anonymity of the survey participants as the surveys will not request any personally identifiable information and all completed surveys will be sent back to the researcher through a central POC.

First Survey: Risk identification and categorization

The first survey requests positive and negative risk items common to government projects accomplished via contracts. A draft Risk Breakdown structure (RBS) will be used to place the identified risks into appropriate categories and it will contain sample risks for some of the categories. The target audience will also be asked to review the RBS for completeness and comprehensiveness of categories.

The body of the email notification text will be as follows (transmission date: (25 August 2014 (tentative)):

"I'm in the process of completing my Master of Science in Project Management this spring and the goal of my research is to develop a risk breakdown structure and a risk register to cover a common core of risks associated with managing government projects via contract.

To accomplish this work, I'm requesting your participation in two surveys; the first survey (this one) has as its objective the development of a Risk Breakdown Structure (RBS) and a list of risks common to managing government projects via

contract. The second survey will request some qualitative rankings and risk response strategies for each of the risks provided from the first survey.

In order to complete this work prior to the end of the fall semester, responses to the first survey should be returned to me by 5pm on September 5th, 2014 (tentative). Your participation is strictly voluntary and no direct benefit is provided to you for participating in this data collection process. Your consent is assumed upon return of the completed RBS to me by the above date. You may also opt-out of participation at any time once you've started.

Thank you in advance for any responses you provide. Please convey any questions you have through your organization's POC.

Very respectfully,

August Banks

arbanksjr@alaska.edu"

The body of the survey text will be as follows:

"Drawing on your professional experience, please develop a list of risks common to managing government projects via contract, based on the draft Risk Breakdown Structure (RBS) provided. The draft RBS contains some sample risks (shown in red). If you could provide as many risks for any category (or multiple categories) in the draft RBS, it would be much appreciated.

Please consider both positive and negative risks; opportunities as well as setbacks.

Also keep in mind the RBS is a draft. If you feel another category needs to be added to classify the risks you've identified, please add it.

Please send your list of risks to your organizational POC by 5pm on September 5th, 2014 (tentative)."

Second Survey: Qualitative Risk Analysis

One of the reasons for the second survey is to solicit quantitative probability and impact rankings for each of the risks identified in the first survey. It will also collect information on the types of impacts the respondents expected the risk would have, such as impacts to the cost, schedule, or quality of the project and its product.

The first step of the analysis is to consolidate the probability and impact rankings to examine the range of responses and determine the appropriate ranges to include in each of the three qualitative categories. After looking at the data, the probability bins will be based on the cumulative percentages, using the first third of the responses as Low, the middle third as Medium, and the top third as High. The ranges of probabilities that fit within those thirds will be used for the qualitative definitions.

The qualitative categories will be used in the risk register to determine the relative
Importance of each risk item and to serve as a basis for application of the risk register to an actual project.
The body of the notification text for the second survey will be as follows (transmission date: (15 September 2014 (tentative)):
"I'm in the process of completing my Master of Science in Project Management this spring and the goal of my research is to develop a risk breakdown structure and a risk register to cover a common core of risks associated with managing government projects via contract.
My first survey requested a list of risks common to government projects managed via contract and any modifications to the draft Risk Breakdown Structure (RBS) deemed appropriate. Let me convey my deepest gratitude to those who submitted inputs.
The risks identified from the first survey were aggregated into a risk register. At this time, I would like to elicit your help in developing quantitative probability and impact estimates for each of the risks, risk response strategies for some of the risks, and estimates for each of the mitigated risks.
You will find an Excel spreadsheet with a risk register attached and instructions included in the spreadsheet. Please enter your responses in the spreadsheet and send it back to your organizational POC by 5 pm on 26 Sep 2014 (tentative). Your participation is strictly voluntary and no direct benefit is provided to you for participating in this data collection process. Your consent is assumed upon return of the completed risk register to me by the above date. You may also opt-out of participation at any time once you've started.
Thank you in advance for your support. Please forward any questions you have to your organizational POC.
Very respectfully,
August Banks
arbanksjr@alaska.edu"

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The survey text for the second survey will be included in the Excel spreadsheet on the very first sheet:
"This spreadsheet contains XX risks that are common to government projects managed via contract. Please review the risks, and to the extent possible, provide quantitative probability and impact estimates for each risk in terms of the percent probability the risk will occur and the percent impact relative to the baseline. Please also specify the type(s) of impact you expect the risks to have in terms of schedule or cost.
After ranking the risks, please select a few of them (perhaps three to five) and consider the risk responses you would implement and enter those in the appropriate area of the risk register. After entering the mitigation strategy, please provide quantitative probabilities for the mitigated risk.
I really appreciate your taking the time to provide these rankings and strategies. The following is an example risk, with its associated quantitative estimates, a possible risk response, and the mitigated quantitative estimates.

EXAMPLE:
Risk: It rains, your school folders get wet, and you have to replace some of them.
Probability: 50%
Impact: +40% in cost (cost will increase 40% over what you paid for all of the folders initially (the baseline cost))
A possible Risk Response strategy: Take an umbrella to block the rain.
Mitigated Probability: 50% (there's still the same chance of rain)
Impact: +5% (i.e., the umbrella doesn't block all of the rain, so only five percent of your folders get wet, increasing the cost 5% from the baseline.

When you've completed the register, please send it via email to your organizational POC by 5 pm 26 September 2014 (tentative). Any questions you have should also be forwarded to your organizational POC who will in turn forward them to me. Again, I thank you all in advance for your support.
Very respectfully,
August Banks
arbanksjr@alaska.edu"

Data Analysis:
The data received from the survey participants will be screened for any blank responses and non-applicable responses such as "N/A" and "I don't know" prior to performing any analysis.
The probability and impact rankings received from the participants will be consolidated in order to analyze the range of responses and to determine the appropriate ranges to be included in the three qualitative risk categories of "Low", "Medium" and "High" . From the number of probabilities of risk occurrences identified, the cumulative percentage will be used to group the probability bins into thirds, using the first third of the responses as "Low", the second as "Medium", and the third as "High". The number of responses (count), the probability bins and cumulative percentages will be displayed in a table as depicted below:

Probability Bin	Count	Cumulative Percentage
0 - 5	XX	XX
6 -10	XX	XX
11 -15	XX	XX
16 - 20	XX	XX
21 -25	XX	XX
26 - 30	XX	XX
31 - 35	XX	XX
36 - 40	XX	XX
41 - 45	XX	XX
46 - 50	XX	XX
51 - 55	XX	XX
56 - 60	XX	XX
61 - 65	XX	XX
66 - 70	XX	XX
71 - 75	XX	XX
76 - 80	XX	XX
81 - 85	XX	XX
86 - 90	XX	XX
91 - 95	XX	XX
96 - 100	XX	100

Exhibit 1.Count and Cumulative Percentage of Probability Bins

The data for the table above will be displayed graphically as well once the actual data is obtained. Based on the data in exhibit 1, the qualitative probability rankings of the survey results will be defined as shown in Exhibit 2.

Probability of Occurrence	Qualitative Probability Ranking
0 - xx	Low
xx - xx	Medium
xx - 100	High

Exhibit 2.Qualitative Probability Ranking Criteria

Risk impacts as identified by the participants will be classified in the manner used above for the risk probabilities and will also be shown graphically.

Impact of Occurrence	Qualitative Impact Ranking
0 - xx	Low
xx - xx	Medium
xx - 100	High

Exhibit 3.Qualitative Impact Ranking Criteria

Averages of responses from each of the participants for each risk in the categories of probability and impact will be computed in order to come up with a final probability and impact score for each risk. These values will be multiplied together and used to develop a combined risk rating for each risk identified and will be used in sorting the risks to determine the risk rankings.

Taking into consideration previous research undertaken in this area (Fisher, 2006), the impact category will be considered generically and as an overall subjective consideration as to any specific category or mix of categories (i.e., scope,

schedule, cost) allowing the participants to determine the actual impacts (as to scope, cost, and schedule) based on an actual project to which the specific risks from the risk register checklist can apply.

The post-response probability and impact estimates for the risks will not be subject to the same rigor of analysis as the risk rankings since these will be based on individual responses; since the qualitative probability and impact rankings will be unique to the individual providing the response strategy, the rankings will be presented as provided.
Exhibit 4 shown below contains an example risk entry as it will appear in the final version of the risk register. Both the final RBS and the risk register combined in the form shown will be made available to the stakeholders for their use as a tool when performing risk analyses for projects.

Further analysis will be presented in the research paper in the form of a breakdown by risk category (from the RBS) as to the relative importance of risk categories based on the responses supplied by the participants. The percentage of risks per category will be displayed graphically and compared to existing risks identified in the literature searches (i.e., DoD Risk Management Guide, etc.). This will form the basis for our conclusions as to the commonality of the risks identified as well as form the basis for further study and research.

		Qualitative Ranking				Post-Response Qualitative Ranking		
RBS Categories	Risk Item and Description	P	I	P*I	Risk Response Strategies	P	I	P*I
Negative Risks - Commercial Risks								
Suppliers and Vendors	Sole-Source suppliers can increase the lead time necessary for procurement of unique items	H	H	H	Identify all such suppliers early on in the project to determine the lead times and place orders accordingly. Offer to pay expediting costs. Inform supplier of the potential for future business. periodically scan the market for potential alternate suppliers	L	H	M

Exhibit 4.Sample entry for final version of the Risk Register

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Attachment A – RBS to be used in Surveys one and two

RISK BREAKDOWN STRUCTURE

2. Technical risk
   - 2.1 Scope Definition
     - 2.1.1 Management of scope not adequate
   - 2.2 Requirements Definition
     - 2.2.1 Requirements poorly defined; further definition expands scope of project
   - 2.3 Estimates, assumptions, and constraints
     - 2.3.1 Not enough personnel are available for the project
   - 2.4 Technical Processes
   - 2.5 Technology
   - 2.6 Technical interfaces
   - 2.7 Design
   - 2.8 Performance
   - 2.9 Reliability and maintainability
   - 2.10 Safety
   - 2.11 Security
   - 2.12 Test and acceptance
3. Management Risk
   - 3.1 Project Management
     - 3.1.1 Schedule not developed from Work Breakdown Structure
     - 3.1.2 Planning is too poor to support the desired implementation tempo
   - 3.2 Program/Portfolio Management
   - 3.3 Operations management
   - 3.4 Organization
   - 3.5 Resourcing
   - 3.6 Communication
   - 3.7 Health, safety and environment
   - 3.8 Quality

4. Commercial Risk
   - 4.1 Contractual terms and conditions
     - 4.1.1 Contractor does not deliver when promised
   - 4.2 Internal procurement
   - 4.3 Suppliers and vendors
   - 4.4 Subcontracts
   - 4.5 Client/customer stability
   - 4.6 Partnerships and joint ventures
5. External Risk
   - 5.1 Legislation
     - 5.1.1 Appropriations or Authorization Bills delayed
   - 5.2 Exchange Rates
   - 5.3 Site/facilities
   - 5.4 Environmental/weather
   - 5.5 Competition
   - 5.6 Regulatory
     - 5.6.1 Product depends on government regulations, which change unexpectedly
   - 5.7 Political
   - 5.8 Country
   - 5.9 Social/demographic
   - 5.10 Pressure groups
   - 5.11 Force majeure
6. Organizational Risk
   - 6.1 Decision Processes
     - 6.1.1 Team members do not buy into the project and consequently do not provide level of performance needed
   - 6.2 Financial
   - 6.3 Culture
     - 6.3.1 Low motivation and morale reduce productivity
   - 6.4 Resources

Organizational structure

Attachment B – Initial Risk Register and Instructions to be used for Survey two

	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q
1																
2		Risk item and		Quantitative Estimate of		Type of			Post-Response quantitative estimate of							
3	ID	Description		Probability	Impact	Impact	Risk Response Strategy		Probability	Impact						
4				Please give your best		cost	Please choose a few risks for		Please give your best							
5				Estimate in rough		schedule	which to provide a response		estimate in rough							
6				percentage terms		etc.	strategy		percentage terms.							
7																
8																
9	1	Management of scope not adequate														
10	2	Schedule not developed from the work breakdown structure														
11	3	Contractor does not deliver when promised														
12	4	Appropriations or authorization bills delayed														
13	5	product depends on government regulations, which change unexpectedly														
14	6	Team members do not buy into the project and consequently don not provide the level of performance needed														

Instructions | Risk Register | Sheet3

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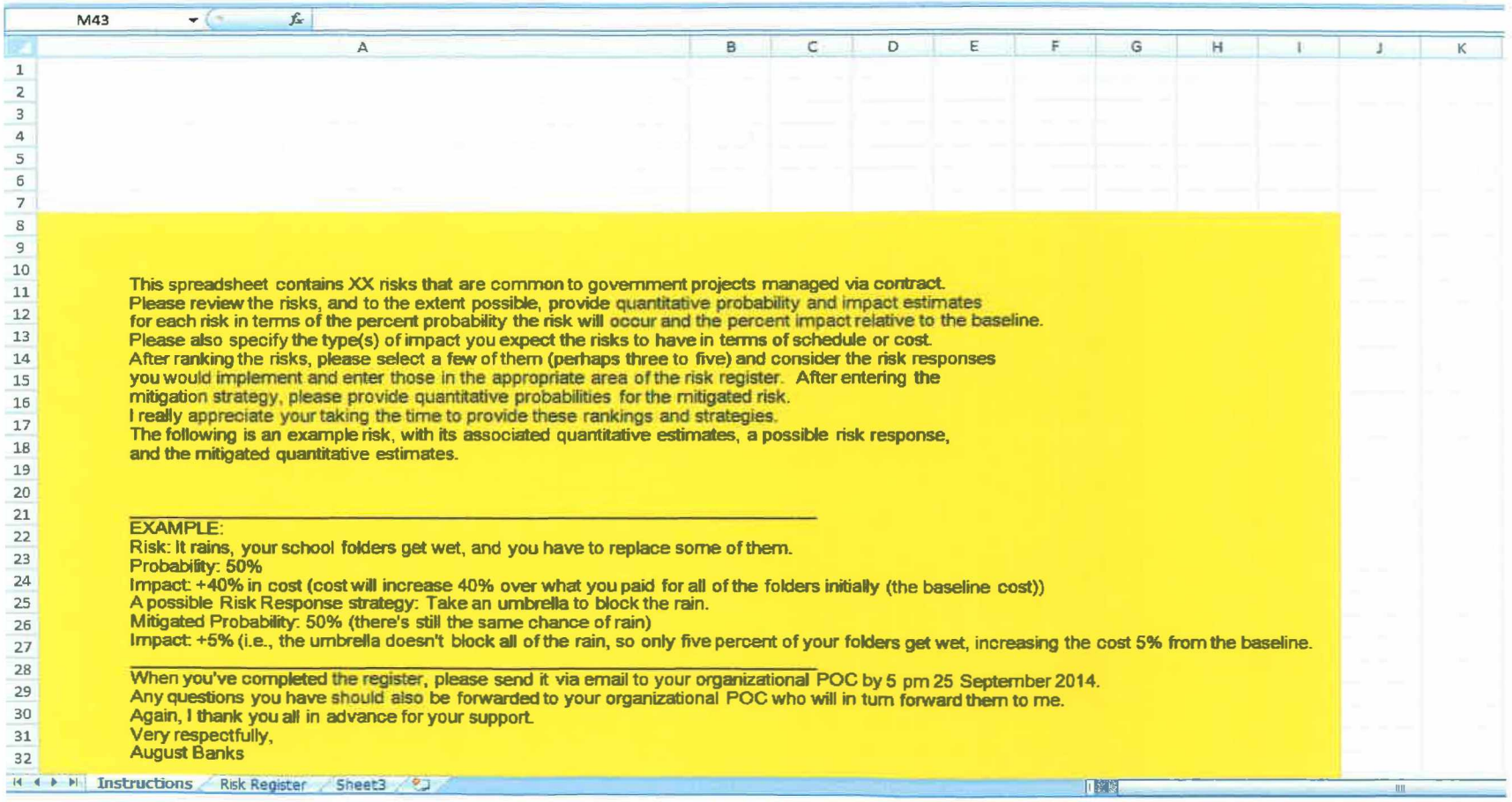
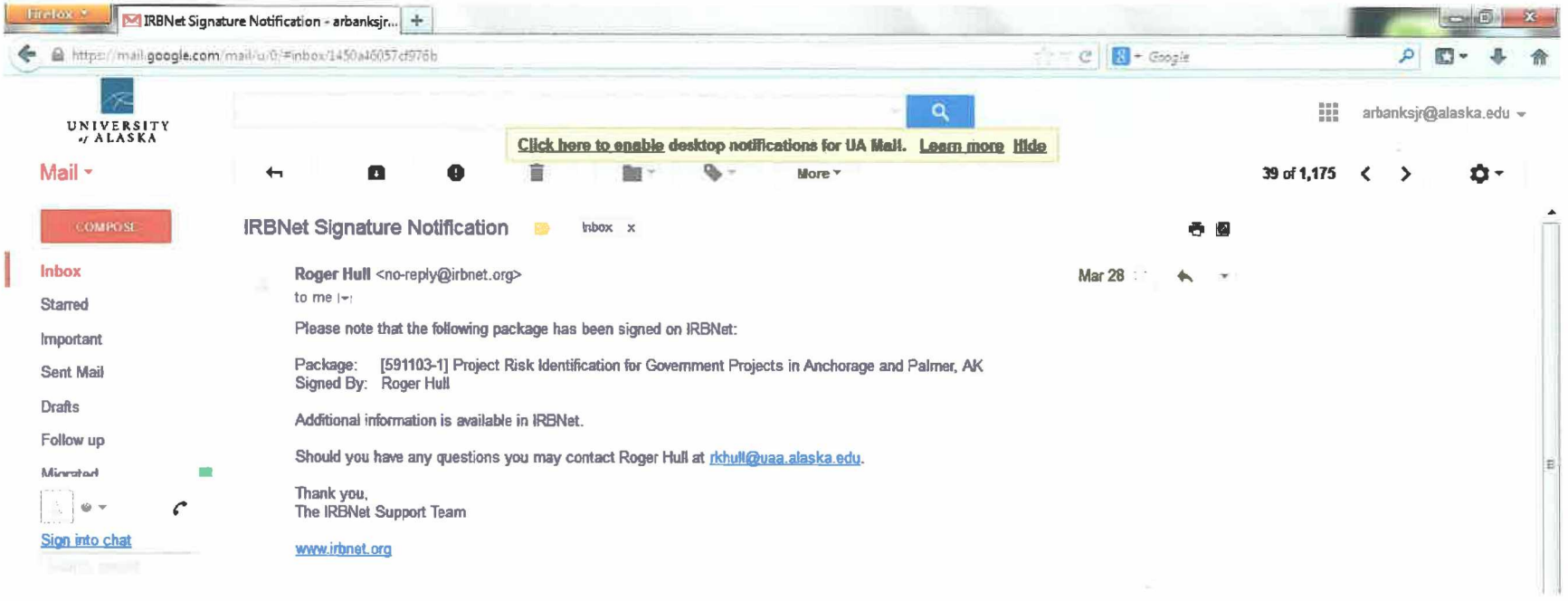


Attachment C: Advisor approval of IRBNet package



12 APPENDIX C: PROJECT STATUS TEMPLATE AND REPORTS

(TEMPLATE)

One Page PM 686A Project Status Report Dashboard

Name: August Banks **Date:**

Project Title: Project Risk Identification for Government Projects in Anchorage and Palmer, AK

Synopsis of Project	**Progress Since Last Report**
Current Status GREEN	**Forecast**
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**

One Page PM 686A Project Status Report Dashboard
Name: August Banks **Date: February 7th, 2014**
Project Title: Project Risk Identification for Federal Government Projects in Anchorage, AK

Synopsis of Project	Progress Since Last Report
The objective of the project is to identify and consolidate a common core of risks associated with managing government projects via contracts. The key deliverables of the project will be a risk breakdown structure (RBS) and a risk register which can be used as a checklist for existing and future projects. The government PMs from the DoD and GSA in Anchorage will serve as SMEs and participants in the surveys.	This is the initial report. Items completed per PPM # 1: - Project Charter - Draft of Abstract - Preliminary WBS - Preliminary project schedule - Stakeholder register - Preliminary GSP - Selection of Three PM Knowledge areas Items in progress to satisfy PPM # 2: - Research Sources and Key Words - Preliminary research methods -- Surveys
Current Status GREEN	**Forecast**
PPM # 1 completed; PPM # 2 projected for completion by target date.	Project is currently tracking to next PPM (PPM # 2); The work accomplished in both PPMs # 1 and 2 serves as the foundation for the refinement of these deliverables as required in the future PPMs.
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Change to composition of Advisory Committee: two new committee members to replace the previous two Key Risk: Unavailability of SMEs from the targeted agencies (DoD and GSA)for participation/consultation/coordination	Work with advisor to clean-up schedule

One Page PM 686A Project Status Report Dashboard
Name: August Banks **Date: February 28th, 2014**
Project Title: Project Risk Identification for Federal Government Projects in Anchorage, AK

Synopsis of Project	Progress Since Last Report
The objective of the project is to identify and consolidate a common core of risks associated with managing government projects via contracts. The key deliverables of the project will be a risk breakdown structure (RBS) and a risk register which can be used as a checklist for existing and future projects. The government PMs from the DoD and GSA in Anchorage will serve as SMEs and participants in the surveys.	Items completed per PPM # 2: - Project Scope Statement - Requirements documentation - Updated WBS - Tables of contents for PM Plan and Final Project Report - Research sources and Key Words - Preliminary research methods and approach to analysis - Signed Student/Advisory Committee "contract" Items in progress to satisfy PPM # 3: - Written draft of project management plan - Revised abstract - Updated Gantt chart
Current Status GREEN	**Forecast**
PPM # 2 completed; PPM # 3 projected for completion by target date.	Project is currently tracking to next PPM (PPM # 3); The work accomplished in both PPMs # 1 and 2 serves as the foundation for the refinement of these deliverables as required in the future PPMs.
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Key Risk: Unavailability of SMEs from the targeted agencies (DoD and GSA)for participation/consultation/coordination	Work with advisor to clean-up schedule and update knowledge area processes

One Page PM 686A Project Status Report Dashboard
Name: August Banks **Date: March 28th, 2014**
Project Title: Project Risk Identification for Government Projects in Anchorage and Palmer, AK

Synopsis of Project	Progress Since Last Report
The objective of the project is to identify and consolidate a common core of risks associated with managing government projects via contracts. The key deliverables of the project will be a risk breakdown structure (RBS) and a risk register which can be used as a checklist for existing and future projects. Government PMs from the participating agencies (GSA and Alaska DNR in Anchorage and Palmer) will serve as SMEs and participants in the surveys.	Items completed per PPM # 3: - Written draft of project management plan - Revised abstract - Description of expected research methods - Description of expected project deliverables and outcomes - Gantt chart update - Update on 3 Knowledge Areas processes applied and measured during project - IRB submittal completed 27 March 2014; IRB approval and issue of exemption letter on 27 March 2014.
Current Status GREEN	**Forecast**
PPM #3 completed; PPM # 4 projected for completion by target date.	Project is currently tracking to next PPM (PPM # 4); final revisions of all pertinent documentation underway.
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Key Risk: Unavailability of SMEs from the targeted agencies (DNR and GSA) for participation/consultation/coordination	Work with committee members and stakeholders to clean-up all existing documentation and update knowledge area processes. Help needed in preparing the presentation.

One Page PM 686B Project Status Report Dashboard
Name: August Banks **Date: 5 September 2014**
Project Title: Project Risk Identification for Government Projects in Anchorage and Palmer, AK

Synopsis of Project	Progress Since Last Report
The objective of the project is to identify and consolidate a common core of risks associated with managing government projects via contract with the intent of reducing the likelihood that applicable risks are not overlooked or omitted from any risk analyses performed by the agencies participating in this project. The deliverables are a risk breakdown structure and risk register to be used as a checklist for discussion/brainstorming when identifying risks and also serve as a reference tool for managing risk throughout a project.	Key tasks completed: - Development of the project charter - Development of the Scope Statement - Development of the WBS - Development of the Project Management Plan Key tasks started: - Data collection - Research - First class meeting (in progress today)
Current Status GREEN	**Forecast**
Currently on track to meet PPM # 1 Deliverables	Project is tracking to next PPM.
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
The imminent changes are related to the required updates identified in PPM #1, particularly the Project Management Plan updates; No anticipated changes in stakeholder composition at this time (Key Risk)	Coordinate with stakeholders on issues related to data collection; coordinate with advisor and committee members on change control.

One Page PM 686A Project Status Report Dashboard
Name: August Banks **Date: 26 September 2014**
Project Title: Project Risk Identification for Government Projects in Anchorage and Palmer, AK

Synopsis of Project	Progress Since Last Report
The objective of the project is to identify and consolidate a common core of risks associated with managing government projects via contract with the intent of reducing the likelihood that applicable risks are not overlooked or omitted from any risk analyses performed by the agencies participating in this project. The deliverables are a risk breakdown structure and risk register to be used as a checklist for discussion/brainstorming when identifying risks and also serve as a reference tool for managing risk throughout a project.	Survey # 1 was completed on schedule (12 September 2014) Survey # 2 in progress (projected completion date: 3 October 2014
Current Status GREEN	**Forecast**
Currently on track to meet PPM # 2 Deliverables (CPI = 0.89; above 0.85 (looking to maintain CPI of 0.85 or better).	Next PM plan updates will be completed by PPM # 2. All Deliverables for PPM # 2 will be available.
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Need to coordinate with SMEs beginning of next week (week of 29 September 2014) to ensure current tasks stay on target.	Still need help with schedule management (MS Project issues). Will coordinate with my advisor next week on this issue.

One Page PM 686B Project Status Report Dashboard
Name: August Banks **Date: 14 November 2014**
Project Title: Project Risk Identification for Government Projects in Anchorage and Palmer, AK

Synopsis of Project	Progress Since Last Report
The objective of the project is to identify and consolidate a common core of risks associated with managing government projects via contract with the intent of reducing the likelihood that applicable risks are not overlooked or omitted from any risk analyses performed by the agencies participating in this project. The deliverables are a risk breakdown structure and risk register to be used as a checklist for discussion/brainstorming when identifying risks and also serve as a reference tool for managing risk throughout a project.	Key tasks completed: - Submitted the draft paper per PPM # 3 - Updated abstract Key tasks started: - Format for presentation
Current Status GREEN	**Forecast**
Currently on track to meet PPM # 4 Deliverables	Project is tracking to next PPM.
Anticipated Changes/Key Risks/Corrective Actions	**Key Takeaways/Where Help Needed**
Awaiting feedback on draft paper submission; will make adjustments as required.	Will coordinate with committee and advisor as needed after receiving feedback on the draft paper.

13 APPENDIX D: PROJECT SCHEDULE

The pdf file below contains the final Gantt for the project. A hard copy of the file will be posted to the binder containing all of the project hard copy documentation.

August Banks_PM 686B_Final Gantt_8 December 2014.pdf

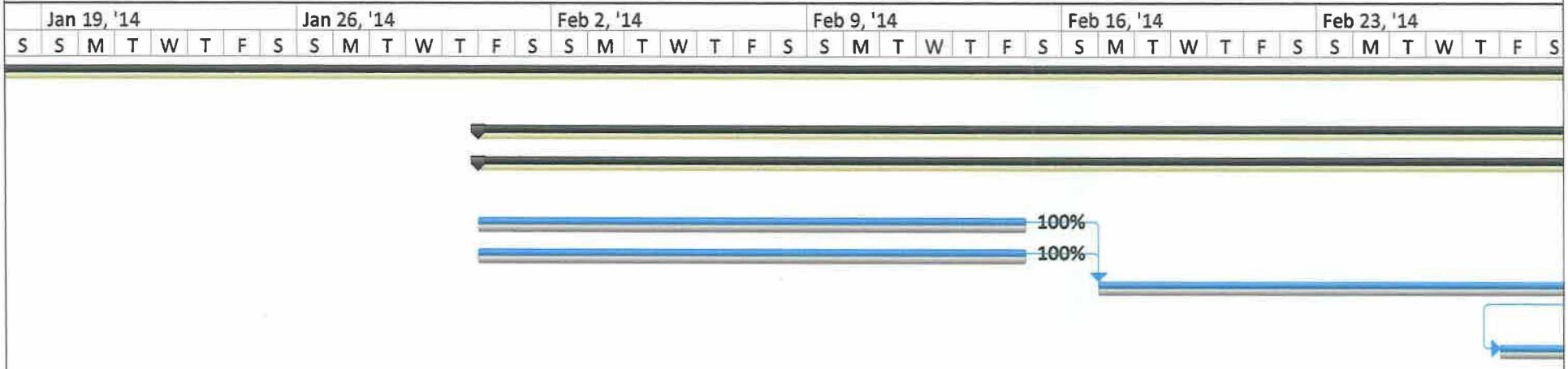
August Banks_PM 686B_Final Gantt_8 December 2014

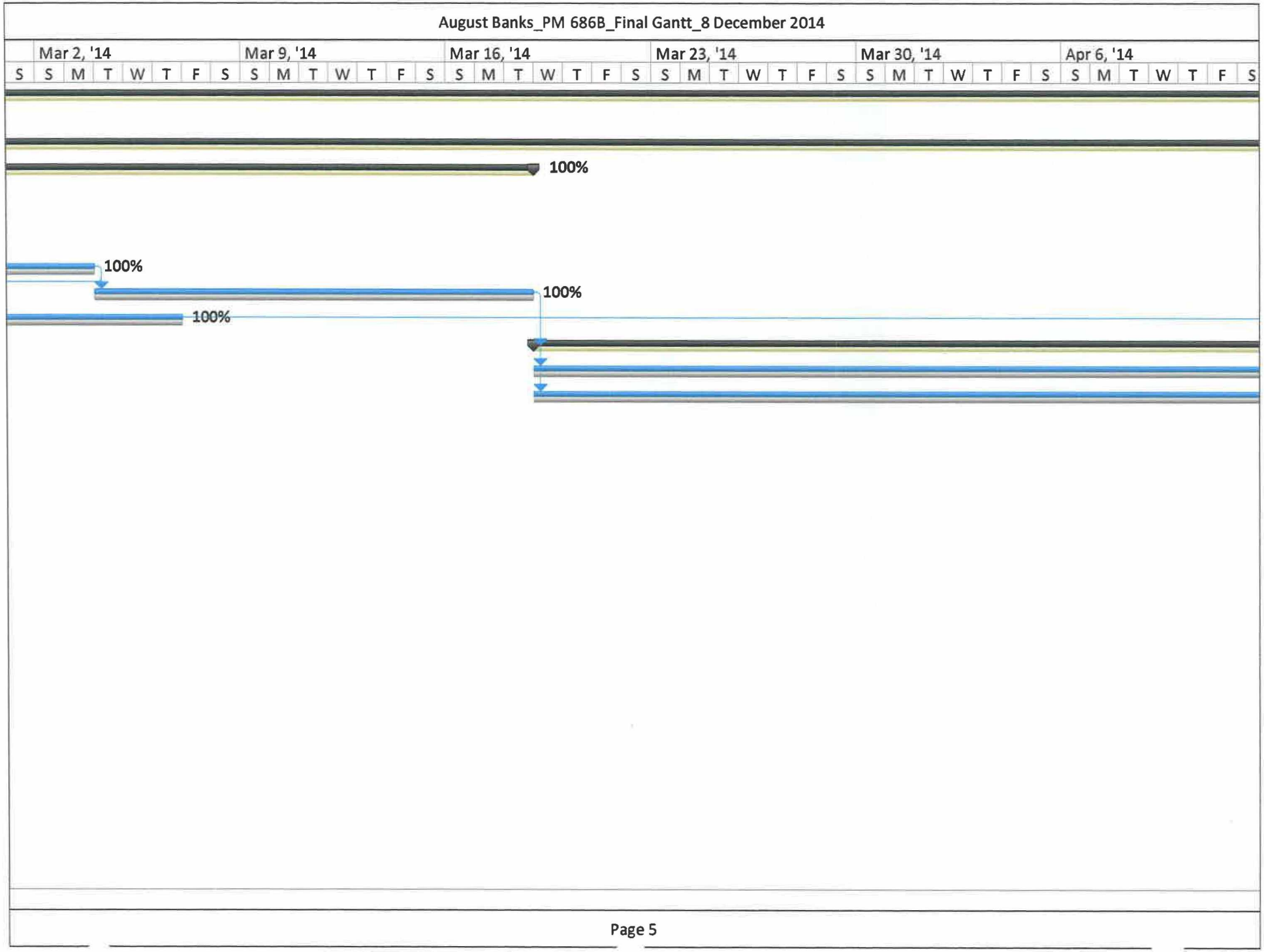
ID	Task Name	Start	Finish	% Complete	Work	Actual Work	% Work Complete	CPI
1	**Project Risk Identification for Government Projects - Anchorage and Palmer, AK**	**Fri 1/17/14**	**Mon 12/8/14**	**99%**	**10,970 hrs**	**10,846.45 hrs**	**99%**	**0.96**
2	**Project Management**	**Fri 1/31/14**	**Mon 12/8/14**	**99%**	**5,422 hrs**	**5,416 hrs**	**99%**	**0.94**
3	**Project Scope Statement/Project Management Plan**	**Fri 1/31/14**	**Tue 3/18/14**	**100%**	**392 hrs**	**392 hrs**	**100%**	**1**
4	Problem Definition	Fri 1/31/14	Fri 2/14/14	100%	22 hrs	22 hrs	100%	1
5	Identify Objectives/Goals	Fri 1/31/14	Fri 2/14/14	100%	22 hrs	22 hrs	100%	1
6	Develop Project Charter	Mon 2/17/14	Mon 3/3/14	100%	22 hrs	22 hrs	100%	1
7	Develop Scope Statement	Tue 3/4/14	Tue 3/18/14	100%	22 hrs	22 hrs	100%	1
8	Develop Project Management Plan	Fri 2/28/14	Thu 3/6/14	100%	40 hrs	40 hrs	100%	1
9	**WBS**	**Wed 3/19/14**	**Fri 11/21/14**	**100%**	**2,166 hrs**	**2,166 hrs**	**100%**	**1**
10	Develop Schedule	Wed 3/19/14	Fri 4/18/14	100%	30 hrs	30 hrs	100%	1
11	Provide Tracking Gantt	Wed 3/19/14	Fri 11/21/14	100%	1,424 hrs	1,424 hrs	100%	1
12	**Status Reports**	**Fri 9/5/14**	**Fri 11/14/14**	**100%**	**413 hrs**	**413 hrs**	**100%**	**1**
13	Submit Status Report # 1	Fri 9/5/14	Fri 9/5/14	100%	1 hr	1 hr	100%	1
14	Submit Status Report # 2	Fri 9/26/14	Fri 9/26/14	100%	1 hr	1 hr	100%	1
15	Submit Status Report # 3	Fri 10/24/14	Fri 10/24/14	100%	1 hr	1 hr	100%	1
16	Submit Status Report # 4	Fri 10/31/14	Fri 10/31/14	100%	1 hr	1 hr	100%	1
17	Submit Status Report # 5	Fri 11/14/14	Fri 11/14/14	100%	1 hr	1 hr	100%	1
18	**Meetings**	**Fri 9/5/14**	**Fri 11/14/14**	**54%**	**423 hrs**	**417 hrs**	**99%**	**1**
19	Attend Class Meeting # 1	Fri 9/5/14	Fri 9/5/14	100%	3 hrs	3 hrs	100%	1
20	Attend Class Meeting # 2	Fri 9/26/14	Fri 9/26/14	100%	3 hrs	3 hrs	100%	1
21	Attend Class Meeting # 3	Fri 10/24/14	Fri 10/24/14	0%	3 hrs	0 hrs	0%	0
22	Attend Class Meeting # 4	Fri 10/31/14	Fri 10/31/14	0%	3 hrs	0 hrs	0%	0
23	Attend Class Meeting # 5	Fri 11/14/14	Fri 11/14/14	100%	3 hrs	3 hrs	100%	1
24	**Closure**	**Fri 11/21/14**	**Mon 12/8/14**	**100%**	**252 hrs**	**252 hrs**	**100%**	**0.09**
25	Provide Stakeholders With Deliverables	Fri 9/12/14	Fri 9/12/14	100%	3 hrs	3 hrs	100%	1
26	Document Lessons Learned	Fri 11/21/14	Tue 12/2/14	100%	64 hrs	64 hrs	100%	0.13
27	Archive Project Documentation	Fri 11/21/14	Fri 12/5/14	100%	88 hrs	88 hrs	100%	0.02
28	Submit Final Deliverables to PM Department	Mon 12/8/14	Mon 12/8/14	100%	1 hr	1 hr	100%	0

ID	Task Name	Start	Finish	% Complete	Work	Actual Work	% Work Complete	CPI
29	**Research**	**Mon 9/8/14**	**Fri 11/7/14**	**100%**	**2,544 hrs**	**2,544 hrs**	**100%**	**1**
30	**Literature Search**	**Mon 9/8/14**	**Fri 11/7/14**	**100%**	**1,440 hrs**	**1,440 hrs**	**100%**	**1**
31	Search For Relevant Books	Mon 9/8/14	Fri 11/7/14	100%	360 hrs	360 hrs	100%	1
32	Google For Relevant Articales/Papers	Mon 9/8/14	Fri 11/7/14	100%	360 hrs	360 hrs	100%	1
33	Find Reference Articles in Wikipedia	Mon 9/8/14	Fri 11/7/14	100%	360 hrs	360 hrs	100%	1
34	**Surveys/Analysis**	**Tue 9/2/14**	**Fri 11/7/14**	**100%**	**744 hrs**	**744 hrs**	**100%**	**1**
35	Perform Survey # 1	Tue 9/2/14	Fri 9/12/14	100%	72 hrs	72 hrs	100%	1
36	Perform Survey # 2	Mon 9/22/14	Fri 10/3/14	100%	80 hrs	80 hrs	100%	1
37	Perform Analysis	Mon 10/6/14	Fri 11/7/14	100%	200 hrs	200 hrs	100%	1
38	**Project Deliverables**	**Mon 11/10/14**	**Thu 11/20/14**	**100%**	**216 hrs**	**216 hrs**	**100%**	**1**
39	Risk Breakdown Structure	Mon 11/10/14	Thu 11/20/14	100%	72 hrs	72 hrs	100%	1
40	Risk Register	Mon 11/10/14	Thu 11/20/14	100%	72 hrs	72 hrs	100%	1
41	**Paper**	**Mon 11/10/14**	**Fri 11/21/14**	**100%**	**560 hrs**	**560 hrs**	**100%**	**0.99**
42	**Composition**	**Mon 11/10/14**	**Thu 11/20/14**	**100%**	**456 hrs**	**456 hrs**	**100%**	**1**
43	Develop Table of Contents	Mon 11/10/14	Mon 11/10/14	100%	8 hrs	8 hrs	100%	1
44	Prepare Abstract	Mon 11/10/14	Mon 11/10/14	100%	8 hrs	8 hrs	100%	1
45	Write Introduction	Mon 11/10/14	Mon 11/10/14	100%	8 hrs	8 hrs	100%	1
46	Write Body of Paper	Mon 11/10/14	Thu 11/20/14	100%	72 hrs	72 hrs	100%	1
47	Develop Conclusions and Recommendations	Mon 11/10/14	Thu 11/20/14	100%	72 hrs	72 hrs	100%	1
48	Provide Recommendations for Further Study	Mon 11/10/14	Thu 11/20/14	100%	72 hrs	72 hrs	100%	1
49	List References	Mon 11/10/14	Thu 11/20/14	100%	72 hrs	72 hrs	100%	1
50	Develop Appendices	Mon 11/10/14	Thu 11/20/14	100%	72 hrs	72 hrs	100%	1
51	**Transmittal**	**Fri 11/21/14**	**Fri 11/21/14**	**100%**	**24 hrs**	**24 hrs**	**100%**	**1**
52	Send Electronic Copy	Fri 11/21/14	Fri 11/21/14	100%	8 hrs	8 hrs	100%	1
53	Provide Hard Copy	Thu 11/20/14	Thu 11/20/14	100%	8 hrs	8 hrs	100%	1
54	**Project Presentation**	**Mon 11/10/14**	**Tue 12/2/14**	**100%**	**372 hrs**	**372 hrs**	**100%**	**0.83**
55	**Prepare Presentation**	**Mon 11/10/14**	**Fri 11/21/14**	**100%**	**200 hrs**	**200 hrs**	**100%**	**1**
56	Prepare Format	Mon 11/10/14	Fri 11/14/14	100%	40 hrs	40 hrs	100%	1
57	Develop Title	Mon 11/10/14	Mon 11/10/14	100%	8 hrs	8 hrs	100%	1
58	Prepare Overview	Mon 11/10/14	Tue 11/11/14	100%	16 hrs	16 hrs	100%	1

ID	Task Name	Start	Finish	% Complete	Work	Actual Work	% Work Complete	CPI	T	F	S
59	Prepare Body	Mon 11/10/14	Mon 11/17/14	100%	48 hrs	48 hrs	100%	1			
60	Submit Draft	Fri 11/21/14	Fri 11/21/14	100%	8 hrs	8 hrs	100%	1			
61	**Conduct Presentation**	**Tue 12/2/14**	**Tue 12/2/14**	**100%**	**36 hrs**	**36 hrs**	**100%**	**0**			
62	Provide Conclusions and Recommendations	Tue 12/2/14	Tue 12/2/14	100%	8 hrs	8 hrs	100%	0			
63	List References	Tue 12/2/14	Tue 12/2/14	100%	8 hrs	8 hrs	100%	0			
64	Solicit Questions	Tue 12/2/14	Tue 12/2/14	100%	8 hrs	8 hrs	100%	0			
65	End Presentation	Tue 12/2/14	Tue 12/2/14	100%	4 hrs	4 hrs	100%	0			

August Banks_PM 686B_Final Gantt_8 December 2014

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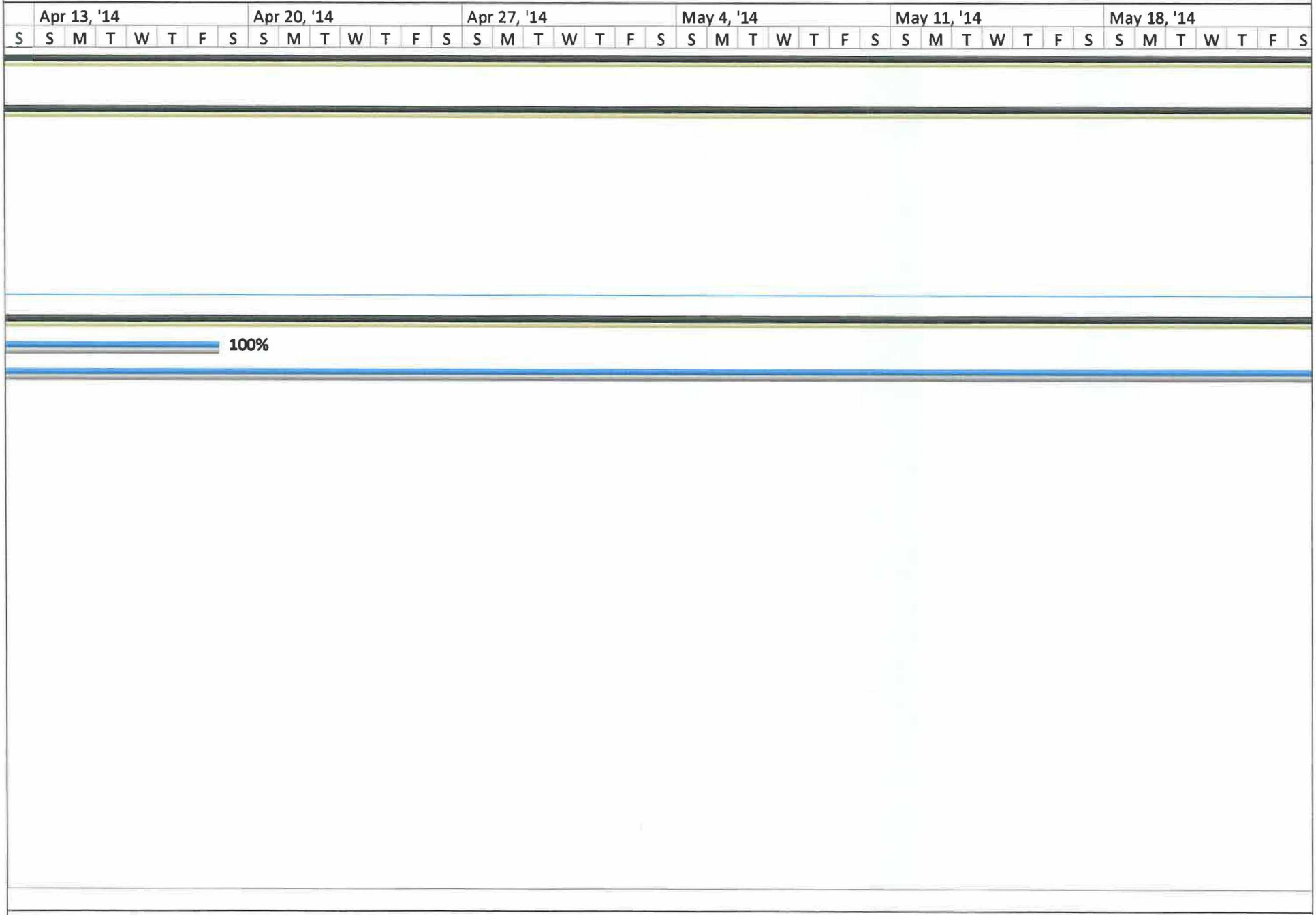
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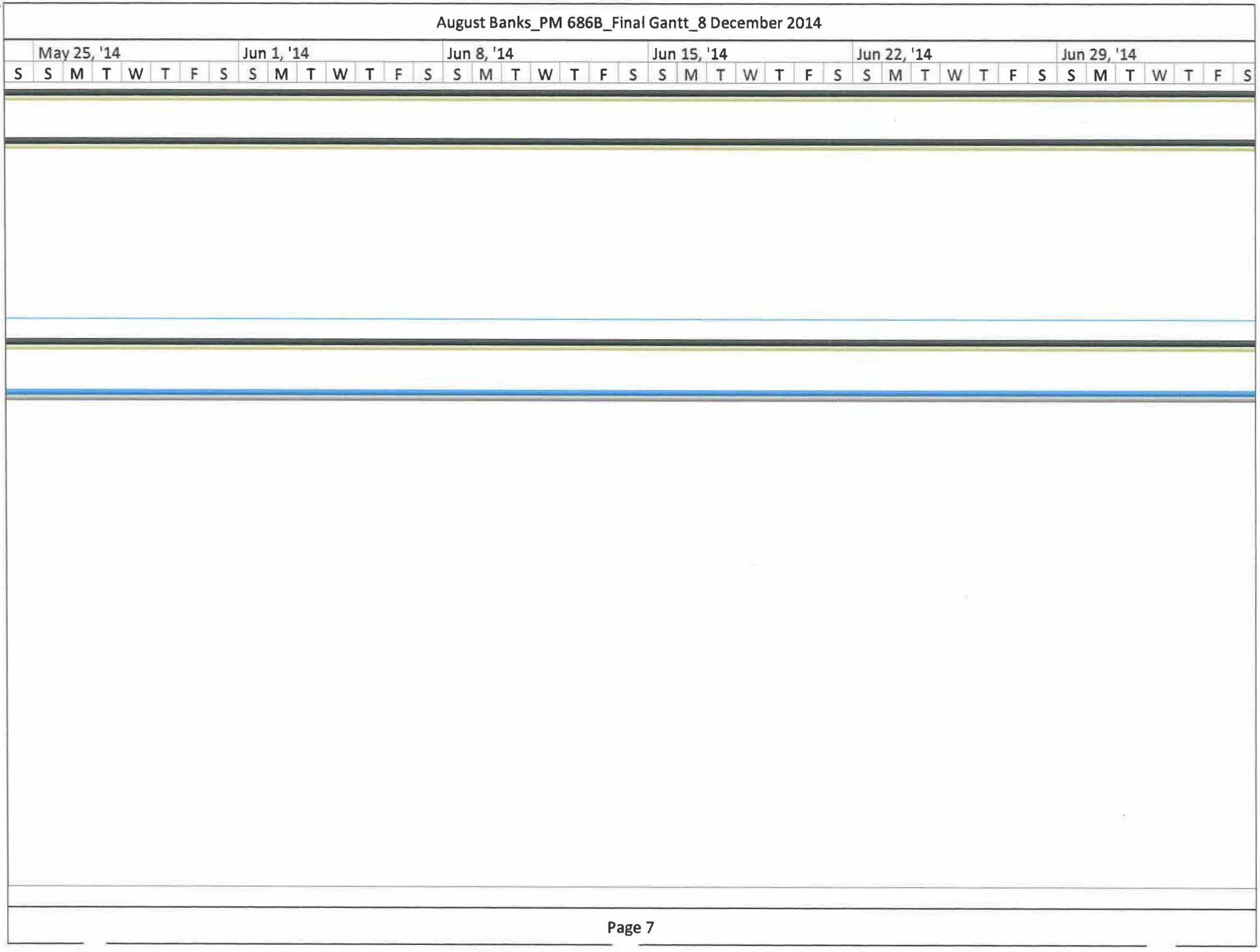
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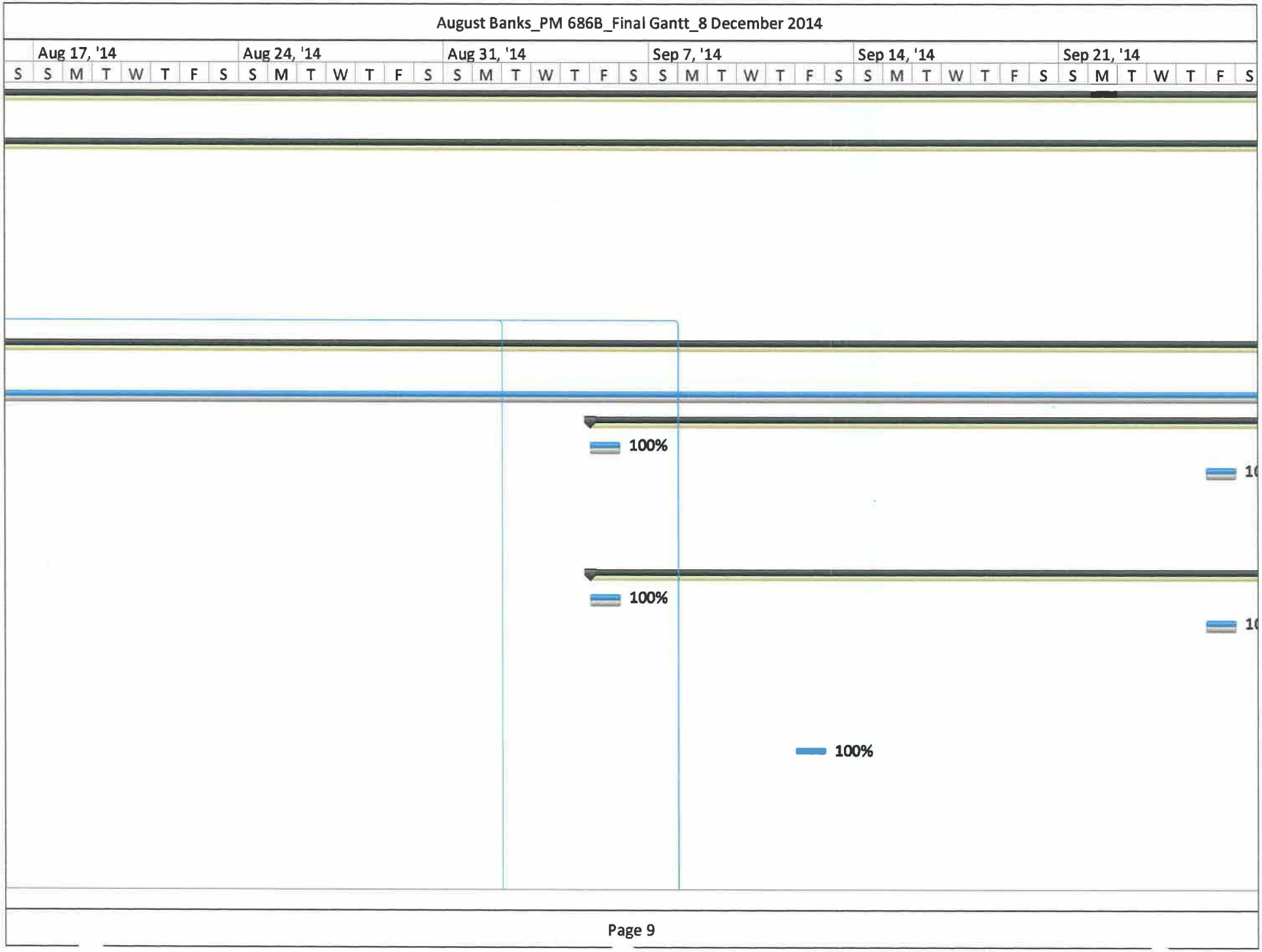
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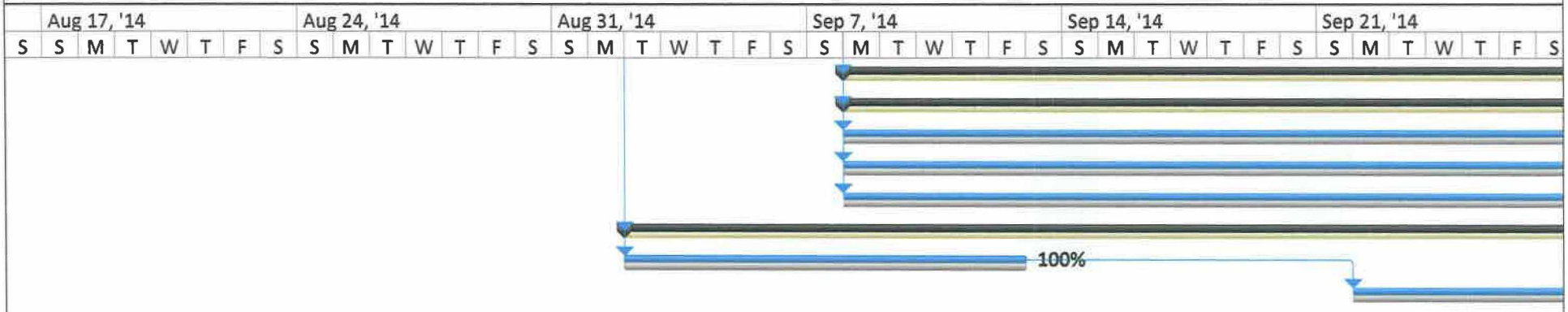

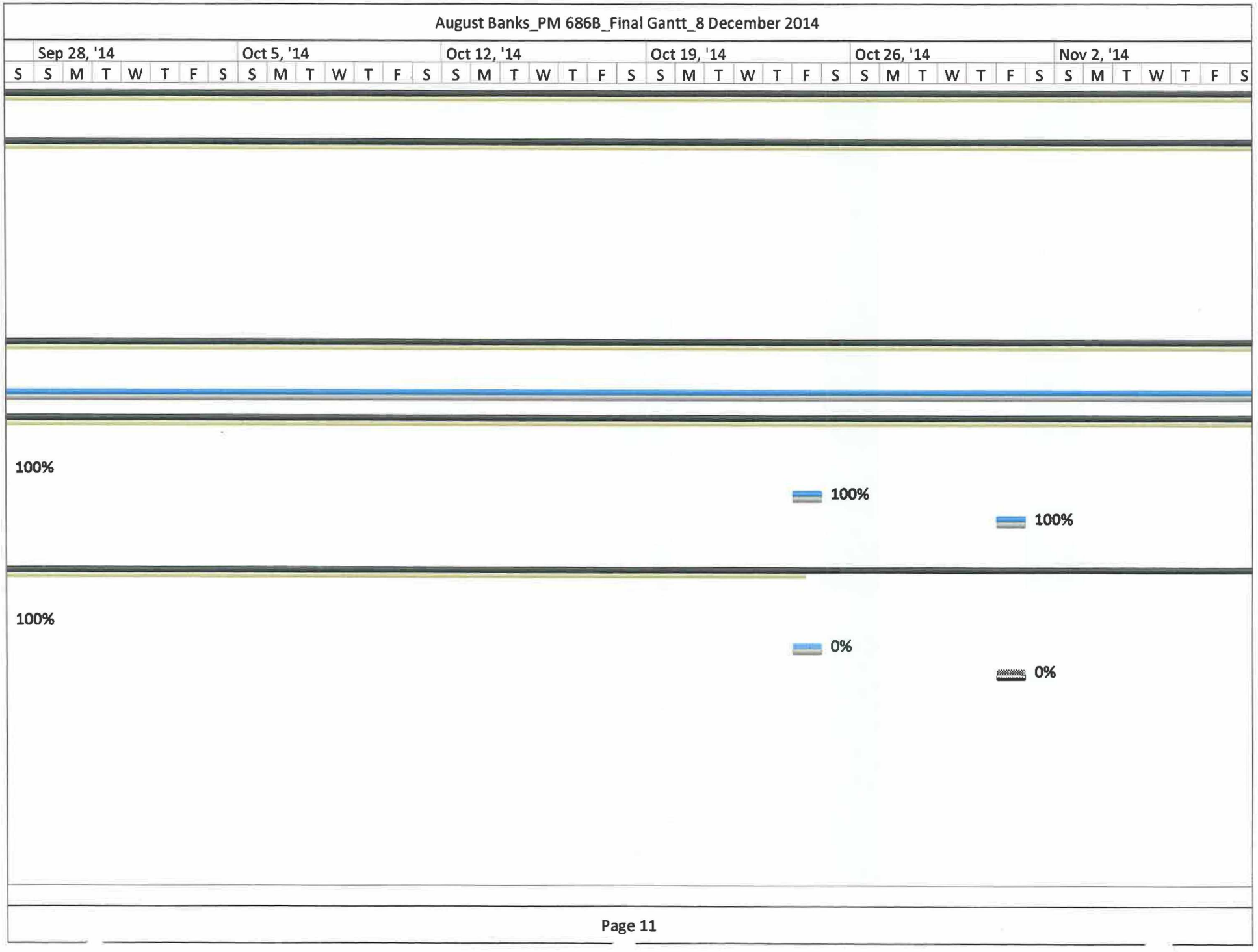
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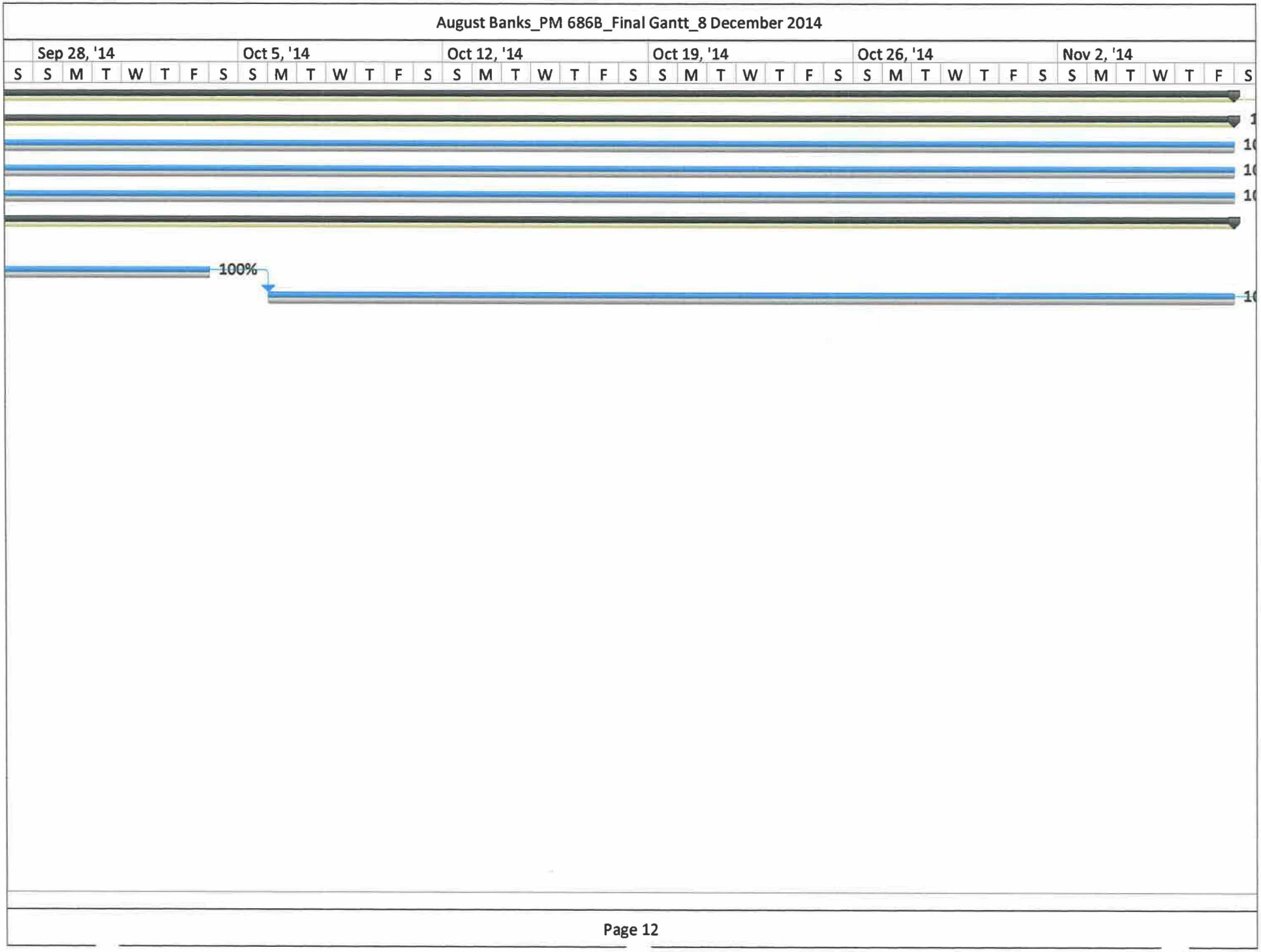
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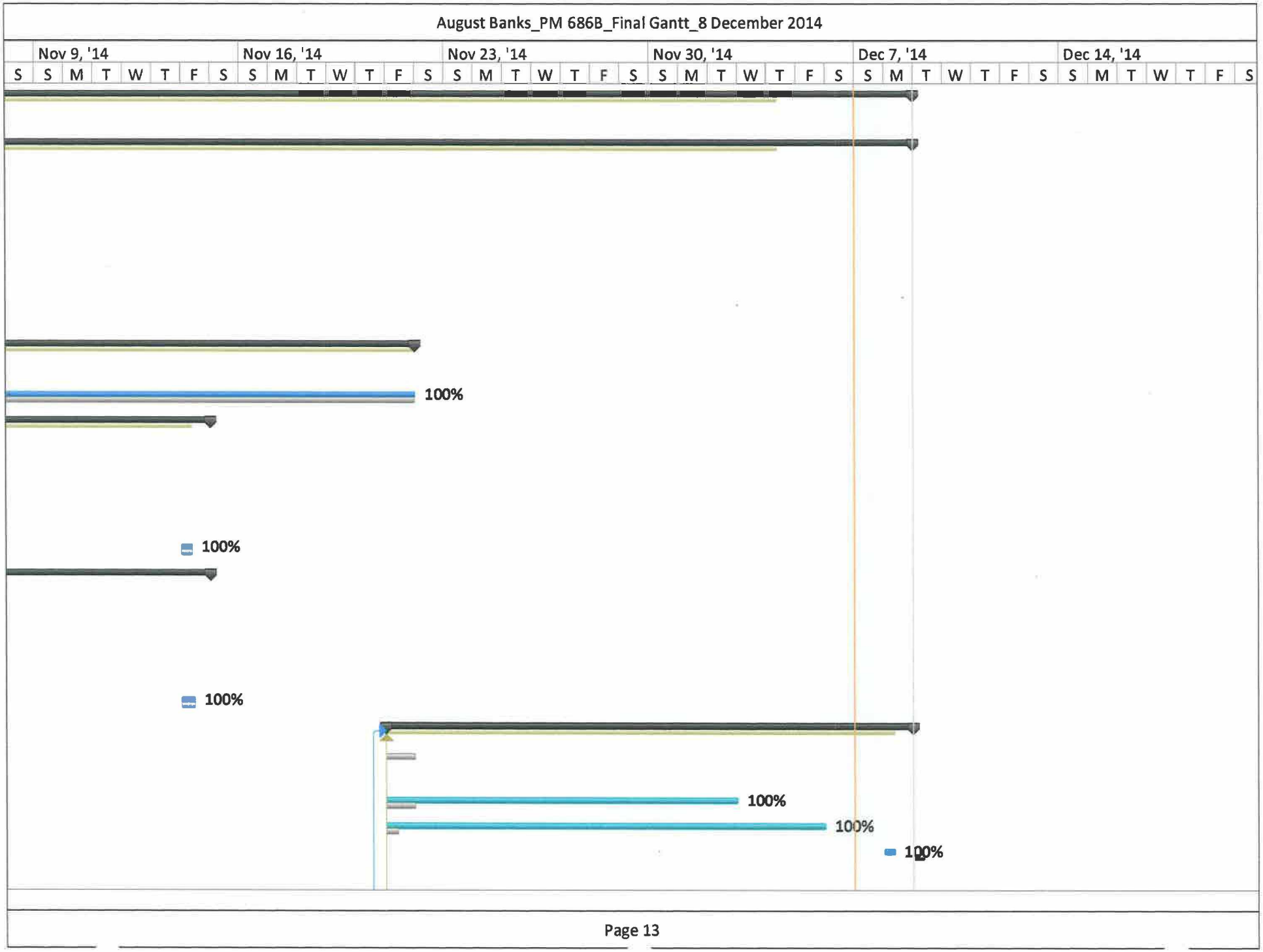
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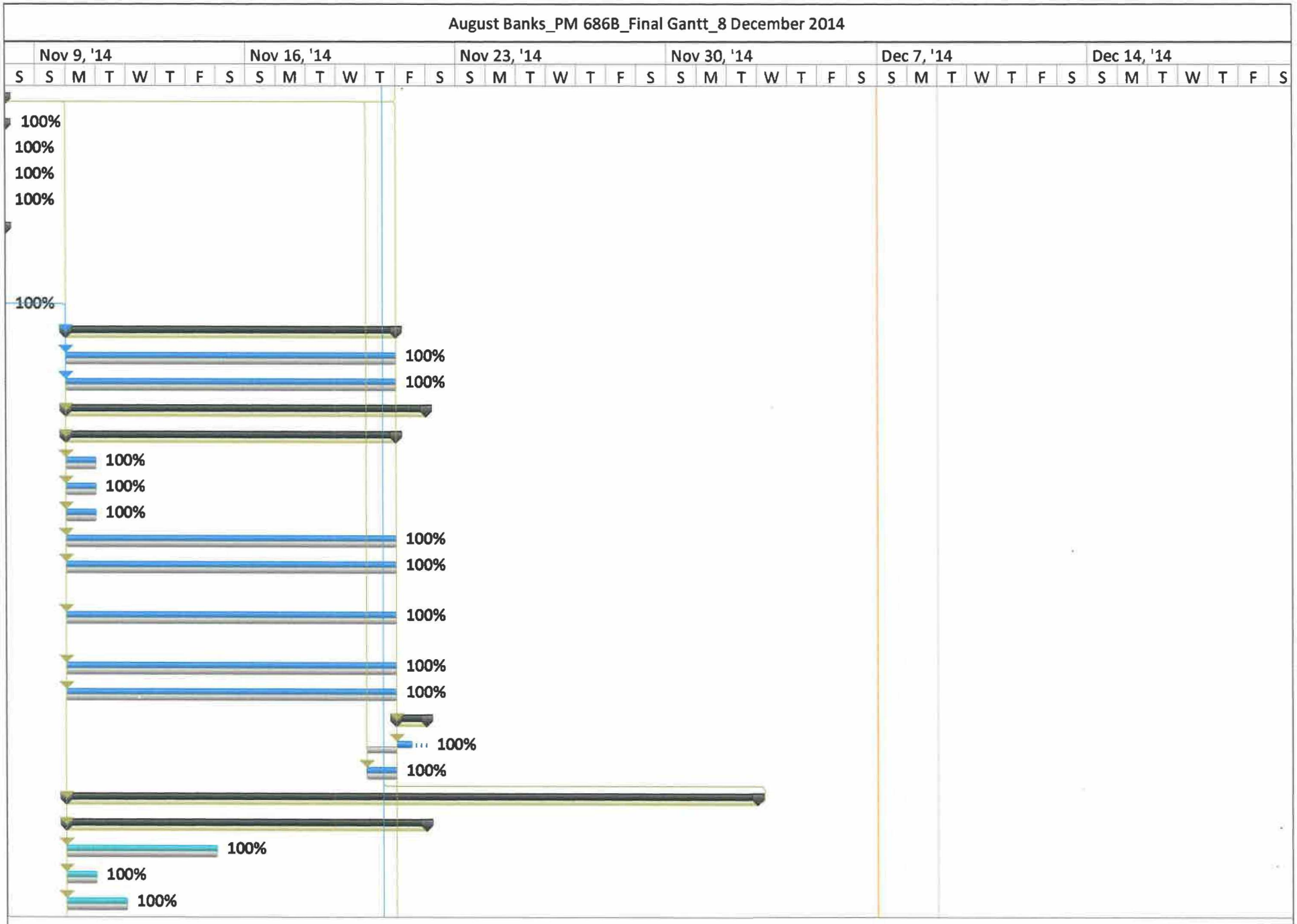
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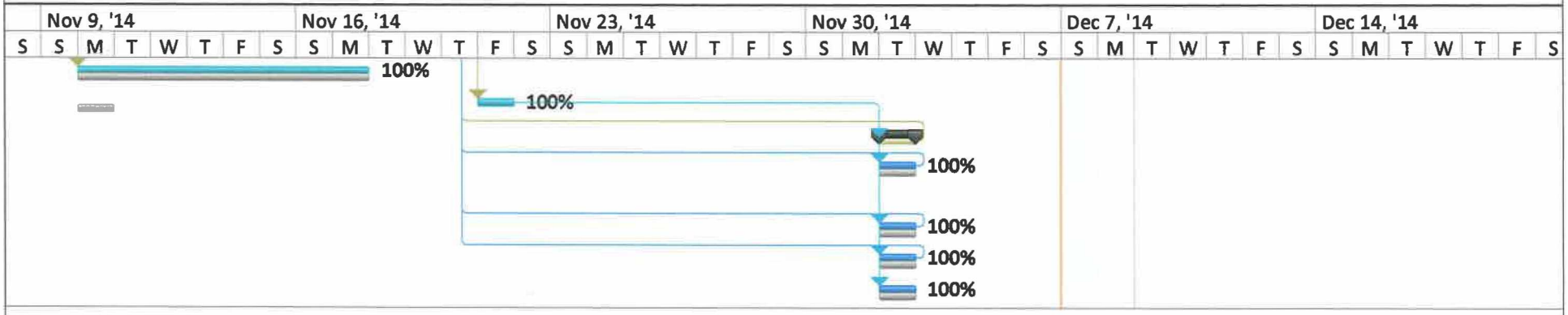

14 APPENDIX E: ISSUE LOG

The issue log depicted below will be used to track issues/concerns related to stakeholder management throughout the course of the project. Any changes resulting from stakeholder management/engagement will be noted in this document which in turn will be used to update any necessary information in the stakeholder register (located in appendix F) as well as any other affected areas of the plan.

Issue Log								
Project: Project Risk Identification in Government Projects in Anchorage and Palmer, AK							**Date:** 04/11/2014	
Issue	**Description**	**Priority (H, M, L)**	**Category**	**Reported By**	**Assigned To**	**Status**	**Date Resolved**	**Resolution/ Comments**
001	Designation of New Committee Member	H	Stakeholder	A. Banks	A. Banks	Closed	1/30/14	Mr. Mike Lasher's other commitments precluded his continued participation as committee member. He was replaced by Mr. Jim Bates on 30 Jan 2014.
002	Designation of New Committee Member	H	Stakeholder	A. Banks	A. Banks	Closed	2/6/14	Mr. Steve Hatter's other commitments precluded his continued participation as committee member. He was replaced by Mr. Walt Almon Bates on 6 Feb 2014.
003	Coordination with committee member	M	Stakeholder	A. Banks	A. Banks	Closed	3/5/14	PM met with Mr. Walt Almon on 3/5/14 and discussed the current PPM documentation. PM incorporated suggested changes into project documentation.

004	Change of SME POC (DoD)	M	Stakeholder	A. Banks	A. Banks	Open		PM was Informed by Mr. George Newman (current DoD POC) that he was being replaced by a Mr. Mark Coburn. Will continue to coordinate with both individuals until Mr. Newman's official departure
005	Change of SME POC (from DoD to DNR/PMC)	H	Stakeholder	A. Banks	A. Banks	Closed	3/26/14	PM was informed by Mr. Mark Coburn that his organization could not provide support for the project. PM replaced that organization with the Plant Materials Center of the Alaska Department of Natural Resources (DNC/PMC). Updated project documentation as appropriate. This action also closes issue # 4.

006	Meeting with Committee Members And Advisor	H	Stakeholder	A. Banks	A. Banks	Closed	4/11/14	PM met with committee members Walt Almon and Jim Bates on 10 April 2014. Reviewed draft PM 686A Presentation PowerPoint slides. PM incorporated modifications suggested by the committee members. Also reviewed slides with Advisor the same day and incorporated modifications.
007	Re-confirmation of support from stakeholders	H	Stakeholder	A. Banks	A. Banks	Closed	9/5/14	PM contacted all stakeholders listed in the stakeholder register to ensure continued support for the project as it enters the execution phase. All stakeholders contacted informed the PM of their continued support of the project.

15 APPENDIX F: STAKEHOLDER REGISTER

Name	Position	Role	Contact Information	Requirements	Expectations	Influence	Interest
August Banks	Project manager/team support	PM	Email: arbanksjr@alaska.edu Phone: 907-360-2122	Meet all PPM requirements and deadlines; provide all interim deliverables and final deliverables as required	Provide Gov PMs with an RBS and Risk Register to use as a checklist for future risk analyses; Complete PM 686; graduate	Medium	High
Roger Hull	UAA Full-time Instructor	Primary Advisor/ Instructor of Record	Email: rkhull@uaa.alaska.edu Phone: (907)786-1923 Cell: (907) 346-6280	Project updates; quality interim deliverables per PPM requirements; notification of project changes	Meeting PPM requirements and deadlines; Demonstrating mastery of PM Skills/techniques	High	High
Walter Almon	UAA Adjunct Instructor	Committee Member	Email: walter.almon@yahoo.com Cell: (907)632-8122	Project updates; quality interim deliverables per PPM requirements; notification of project changes	Meeting PPM requirements and deadlines; Demonstrating mastery of PM Skills/techniques	Medium	High

James Bates	UAA Adjunct Instructor	Committee Member	Email: jlbates@go-big.com Phone: (907) 854-6790	Project updates; quality interim deliverables per PPM requirements; notification of project changes	Meeting PPM requirements and deadlines; Demonstrating mastery of PM Skills/techniques	Medium	High
Brianne Blackburn	External Stakeholders - Government PMs(DNR)	SME; recipient of final project deliverables	Email: blackburn.brianne@gmail.com Phone: (907) 745-8785	Keep informed; share lessons learned; provide final products; ensure deliverables reflect PMBOK and PMBOK government extension guidelines	The opportunity to contribute subject matter expertise; deliverables that can be used in the performance of risk analyses for future projects	High	High
Andrew Wareham	External Stakeholders - Government PMs (GSA)	SME; recipient of final project deliverables	Email: Andrew.wareham@gsa.gov Phone: (907) 271-1549 Cell: (907) 903-7577	Keep informed; share lessons learned; provide final products; ensure deliverables reflect PMBOK and PMBOK government extension guidelines	The opportunity to contribute subject matter expertise; deliverables that can be used in the performance of risk analyses for future projects	High	High

16 APPENDIX G: RISK MANAGEMENT MATRIX (RISK REGISTER)

Risk ID	WBS	Risk Statement	Probability	Impact				Score	Response	Mitigation
				Scope	Quality	Schedule	Cost			
001		The Committee members will not be available for the duration of the project							Risk realized (30 Jan 2014 and 6 Feb 2014). Immediate action was taken to replace two committee members. All required documentation was updated and all other affected stakeholders were informed as needed.	Immediate administrative action to reduce the impact. Submission of the GSP and Student-Committee contract occurred on schedule.
002	1.2.2 1.2.3 1.2.3.1 1.2.3.2	Change of stakeholders during the project requires re-work of the plan and change management.	0.50			0.50		0.025	Risk realized (21 March 2014). PM was informed by DoD POC (Mr. Mark Coburn) that support could not be provided for the project. Ms. Brianne Blackburn replaced him (26 March 2014) as the POC for the new organization participating in the project (DNR/PMC).	Ms. Blackburn was briefed on the project and its objectives. The baseline requirements were validated with Both her and Mr. Drew Wareham (GSA POC). All other stakeholders were informed as needed and all project documentation was revised as appropriate. No impact to project schedule or scope due to immediate mitigation actions.

Risk ID	WBS	Risk Statement	Probability	Impact				Score	Response	Mitigation
				Scope	Quality	Schedule	Cost			
004	1.2.3 1.2.3.1 1.2.3.2	Survey instruments do not pass IRB review	0.25			0.25		0.062	**NOTE: IRB approved the research methodology on 27 March 2014. This risk is no longer valid.**	**None required.**
005	1.1 1.2 1.3 1.4 1.5	PM does not satisfy PM 686 PPM requirements	0.25			0.50		0.125	Initiate change management	Re-work administrative deliverables to meet requirements
006	1.1 1.2 1.3 1.4 1.5	PM does not obtain Academic Advisor approval of project management plan.	0.25			0.75		0.188	**NOTE: The plan was approved during the planning phase of the project.**	**None required.**
007 **(Added 19 Sep 2014)**		PM does not obtain Academic Advisor and committee approval ("go") for any go/no go checkpoint. Event will delay the project completion.							**Accept risk. Defer until the next semester.**	**None.**

August Banks
PM 686

Risk ID	WBS	Risk Statement	Probability	Impact				Score	Response	Mitigation
				Scope	Quality	Schedule	Cost			

17 APPENDIX H: CHANGE LOG/CHANGE REQUEST FORM

Change Log							
Project:						**Date:**	
Change No.	**Change Type**	**Description of Change**	**Requestor**	**Date Submitted**	**Date Approved**	**Status**	**Comments**
PM686 B-001a	Schedule	Change to project planned completion dates	A. Banks	6 Sep 2014	16 Sep 2014	Change implemented	Schedule Updated

Change Request	
Project: Project Risk Identification for Government Projects	**Date: 6 September 2014**
Change Requestor: August Banks	**Change No:PM686B-001a**
Change Category (Check all that apply): X Schedule ☐ Cost ☐ Scope ☐ Requirements/Deliverables ☐ Testing/Quality ☐ Resources	
Does this Change Affect (Check all that apply): ☐ Corrective Action ☐ Preventative Action ☐ Defect Repair X ☐ Other	
Describe the Change Being Requested: Request changes to the planned completion dates shown in the accompanying list of schedule dates be approved.	
Describe the Reason for the Change: The change is necessary to align the task dates with the PPM due dates. The original schedule was planned in the previous semester with estimated Fall 2014 PPM dates; now that "hard" dates are available for the PPMs for the semester, the tasks in the schedule can now be better aligned with these dates to ensure timely compliance with the PPMs.	
Describe all Alternatives Considered: Not making the change. This alternative is not practical in that the tasks affected would not be completed within the timeframe appropriate for the PPM in which it should be completed.	
Describe any Technical Changes Required to Implement this Change: None.	
Describe Risks to be Considered for this Change: There is positive risk associated with this change as the new dates would increase the ~~possibility~~ probability of completing the tasks by the new estimated finish dates.	
Estimate Resources and Costs Needed to Implement this Change: Resources – One PM, Costs: approximately three hours.	
Describe the Implications to Quality: No change to the quality of ongoing PM work or deliverables; ~~only a brief change~~ an apparent & improvement in schedule performance due to the date changes.	
Disposition: ☒ Approve ☐ Reject ☐ Defer	
Justification of Approval, Rejection, or Deferral:	

Change Board Approval:		
Name	**Signature**	**Date**
Roger Hull		16 Sept 2014
Walter Almon		
James Bates		

18 APPENDIX I: PROJECT MANAGEMENT JOURNAL

August Banks
PM 686B
8 December 2014 (Final Version)

PROJECT RISK IDENTIFICATION FOR GOVERNMENT PROJECTS IN ANCHORAGE AND PALMER, AK

Project Management Journal – Project Execution, Controlling and Closing

NOTE: As this is the final version (8 December 2014) of the project management journal, it is deemed prudent to attach it as an appendix to the project management plan (Appendix I). The introduction below encompasses all of the activities as they related to the PPMs and when the document was a separate entity from the plan. Its basic premise is still valid for the post-project review that comprise the final entries to this journal.

INTRODUCTION:

This project management narrative/journal will be used to describe PM activities, concerns, issues, and lessons learned occurring prior to each Project Progress Milestone (PPM) Due Date. The entries will provide clarification of issues, activities, procedures, etc. that would otherwise make an already extensive project management plan even more voluminous if annotated in the plan. Journal entries referencing any updates to the project plan will indicate the section and page(s) affected.

PPM # 1 - 19 September 2014:

The week of 25 August 2014, all stakeholders listed in the stakeholder register (Project Plan, Appendix F, Pages 15-1,15-2) were contacted to confirm they were still available for participation in the project (annotated as item # 007 in the Issue Log, Appendix E, pg 14-3). Walt Almon (28 Aug – confirmed), Jim Bates (2 Sep – Confirmed), Drew Wareham (2 Sep – confirmed), and Brianne Blackburn (2 Sep – confirmed). Update on stakeholder management knowledge area: stakeholder turnover rate of zero as of this PPM. No change in requirements as stated in the stakeholder register; ratio of stakeholder requirements changes to requirements baseline is zero for this PPM period.

The WBS (project plan, Section 3, pages 3-1through 3-4, both the outline and tree structure versions) was updated. The updates were discussed with Roger Hull and it was determined that a formal change request wasn't necessary since no new work packages were added (just clarification and expansion of certain "parent" work packages into subtasks).
A change request (CR) was submitted to the CCB per the change control process as described in the project plan (Sections 3.2.4 and 3.2.5, pages 3-6, 3-7); the request was for updating the project schedule with dates that correlate with the PPM dates. The initial version of the CR was deferred for clarification; the CR was revised and re-submitted. It was approved on16 Sep 2014.

Project Deliverables update: Both organizations returned their versions of the draft Risk Breakdown Structure with their risks identified (12 Sep 2014) thus completing the collection of the raw data needed for the project; their inputs will be consolidated and incorporated into the draft risk register to be distributed as survey # 2 the week of 22 September 2014. Preliminary research is still in progress. New literature sources are annotated in the literature search document.
The key risks as described in section 2.4, pages 2-3,2-4 of the plan were edited; two of them were overcome by events and removed from the body of the plan (these risks remain in the risk register for historical purposes). One additional risk was added as shown in the plan and the risk register. Update on risk management knowledge area: no risks realized this period. Consequently, the ratio of risks realized to risks outstanding is zero.
Scope Management knowledge area update: No changes in scope during this period.

Administrative actions: Meuy was provided with the updated GSP on 28 Aug 2014. The expectations contract was signed by the PM, his advisor, and the committee and forwarded to Meuy this week.
I worked with Roger this week (18 September) on tracking project progress using the CPI in MS Project. Somehow some of the tasks were lost in the file we worked on, so the updated file submitted for this PPM will be the one with the new dates approved from the change request. The status of 53% complete is not accurate. I will work with Roger again early next week (the week of 22 Sep) to get my Gantt chart up to speed

using the CPI to track the progress and will update that section of the project plan describing use of the method.

PPM # 2 - 10 October 2014:

As of this PPM, the following activities occurred:
Both major stakeholders from the participating organizations (Brianne and Drew) provided their inputs to survey # 2 on schedule (3 Oct 2014). These constitute the final data required to initiate the analysis process (began this process the week of 6 October; more of a cursory review of all the data and verification of the analysis approach previously approved by my Advisor; coordinated with Roger on the research analysis previously approved; it is a "go". The method as delineated in appendix "B " (Section 11-1) of the project management plan will be used). Update on stakeholder management knowledge area: stakeholder turnover rate of zero as of this PPM. No change in requirements this period; ratio of stakeholder requirements changes to requirements baseline is zero for this PPM period.
NOTE: I'm still having issues with my MS Project file. I attempted to adjust the project update as of 10 October 2014, and again, some of my tasks were dropped from the file. For this reporting period, the "percent work complete" column is a better reflection of where I am at this point in time (about 40 % complete). I'll work with my advisor to determine whether or not this issue is due to "operator error" or not…
New references (books) were added to my research materials. Dr. Kerzner's current edition of his PM text (11th edition, 2013) was added to the list (see accompanying document: new additions are in RED). His text is the second that I've found that references the DoD Risk Management guide as an excellent source (Dr. Kossiakoff's text ("Systems Engineering: Principles and Practice") is the other source that cites this work).
Project Deliverables update: As mentioned above, both Brianne and Drew returned the results from survey # 2 on schedule. As of this date (10 Oct 2014), the final RBS, risk register, and paper are on track for final submission on 20 November 2014.
Update on risk management knowledge area: no risks realized this period. Consequently, the ratio of risks realized to risks outstanding is zero.
Scope Management knowledge area update: No changes in scope during this period.

PPM # 3 - 7 November 2014:

As of this PPM, the following events and activities occurred:
The working draft of the paper was completed. It was provided for review to the committee members (Walt Almon and Jim Bates) on 28 October 2014. Feedback was received from the committee members and incorporated into the draft on 6 November 2014. The PM coordinated with his Advisor to obtain assistance in formatting the document. The research results and analysis, preliminary conclusions, and project deliverables are delineated/depicted in the draft document (NOTE: The complete, final version of the risk register will be appended to the final paper along with the other items required in their appropriate appendices in the final version of the document; the final version of the consolidated RBS is depicted in Exhibit 4 in the paper; this version will be placed in the appendix along with the other material required for the other appendices in the final version of the paper.)
The abstract was revised. The "objectives" section was updated to reflect the material in the same section in the paper.
The dates in the project schedule pertaining to the paper will be adjusted during the period between this PPM and PPM # 4, as revisions to both the paper and the deliverables are expected during that time frame. The CPI of 0.74 underestimates the total overall progress on the project. A better estimate will be provided by PPM # 4.
Update on stakeholder management knowledge area: stakeholder turnover rate of zero as of this PPM. No change in requirements this period; ratio of stakeholder requirements changes to requirements baseline is zero for this PPM period
Update on risk management knowledge area: no risks realized this period. Consequently, the ratio of risks realized to risks outstanding is zero.
Scope Management knowledge area update: No changes in scope during this period.

PPM # 4 - 21 November 2014:

As of this PPM, the following events and activities occurred:

- The primary stakeholders of the participating organizations (Brianne and Drew) were provided with the project deliverables today; they were transmitted electronically. Will follow-up with them early next week to obtain feedback.

- The draft presentation was prepared and submitted to the committee for review on 19 Nov 2014. It was also sent to Roger that day as well. Will coordinate with them early next week to obtain feedback. There's no doubt in my mind that it needs work, and I will expeditiously seek the input from my advisor and committee members next week. I made the attempt to keep the slides as "uncluttered" as possible, while trying to covey my message as coherently and consistently as possible. The verbiage in the notes section of the slides should speak to the "sparse" content of the slides…

- The PPM deliverables including the project deliverables were submitted today. While the report submitted contained all of the deliverables, copies of the final RBS and risk register were sent as well. The Gantt chart reflects an improved CPI. More tasks were closed out this period.

- Update on stakeholder management knowledge area: stakeholder turnover rate of zero as of this PPM. No change in requirements this period; ratio of stakeholder requirements changes to requirements baseline is zero for this PPM period. As mentioned above, I'll follow up with Brianne and Drew early next week to obtain their feedback.

- Update on risk management knowledge area: no risks realized this period. Consequently, the ratio of risks realized to risks outstanding is zero.

- Scope Management knowledge area update: No changes in scope during this period

Post-Project Review – 8 December 2014:

I received feedback (25 November 2014) from Brianne and Drew on the deliverables I sent them on 21 Nov 2014. They confirmed that the deliverables met the objectives agreed upon at the beginning of the project (the requirements and expectations as documented in the "requirements" and "expectations" columns of the stakeholder register were satisfied (see Appendix F of the project management plan to review these items)).

I met with Walt Almon on Wednesday, 26 November 2014, to go over my draft presentation slides, He provided good feedback, and I made the appropriate changes to the slides.

Today (2 December 2014) I conducted the presentation for the project. Afterwards, I obtained my academic advisor's signature on the project acceptance document, formalizing acknowledgement that the POCs of the participating agencies were provided with the final deliverables of the project, and also formally initiating the closure process. All closure activities are completed except for submitting the project deliverables to the ESPM Department (8 and 9 December 2014). The following entries in this journal will constitute the post-project review.

POST PROJECT REVIEW

The deliverables were confirmed as meeting the requirements and expectations as documented in the stakeholder register (21 Nov 2014); this constituted the audit of the deliverables and was confirmed by the POCs of the participating agencies.
The project charter required minimal updates as it was the same charter that is in the project management plan (Section 2 – Project Charter) that was approved in both PM 686A and 686B. The blanket approval of the project management plan by the academic advisor encompassed approval of the stand-alone document, so no signatures were needed for the stand-alone document (this is the case for the other sections of the plan, except for the project acceptance document (section 9.1 of the plan). **As noted in the stand-alone document and the version in the project management plan, all of the due dates in the list of summary milestones are actual completion dates, and all were completed on schedule.** This is addressed again in the lessons learned document in the context of schedule management.
As noted in section 3.2.7 of the project plan, the only change request and the change log is located in Appendix H of the plan. The change request was approved on 16 September 2014.

Comments on the Stakeholder and Communications Management subsidiary plan:

- Section 6.8 – Communications Matrix: The PM chose to contact all of the major stakeholders individually rather than have a "kick off' meeting as documented in the matrix. There were no new issues to be addressed since the previous

communication (the end of the planning phase), so the PM merely contacted all of the major stakeholders to verify whether or not they were still available to participate in the project (this is documented in the "Issue Log" in Appendix E).

- The PM met with his Academic Advisor frequently during the implementation phase of the project (on average, about once a week), so the weekly status meetings mentioned in the communications matrix were essentially satisfied.

- Project status reports were produced and briefed at each PPM, so the monthly project status reports as mentioned in the communications matrix were performed as required (the one-page status reports for both PM 686A and 686B are located in appendix C of the project management plan).

Issues concerning the areas of Scope, Stakeholder, and Risk management are addressed in the "selected knowledge areas" document. A copy of this document will be provided electronically via CD and zip file as well as hard copy in the project binder. The lessons learned narrative will also be provided as a stand-alone document to be provided electronically via CD and zip file as well as hard copy in the project binder. There were no required updates to the Stakeholder register. All information contained therein is up to date, and the requirements and expectations were verified as accurate and complete with the stakeholders.
The risk register was updated to contain all of the risks, realized and unrealized. This is discussed further in the "selected knowledge areas" document. All other subsidiary plans were also updated as appropriate.

This concludes the post-project review and consequently, project closeout.

August R. Banks, Jr.
8 December 2014

PROJECT CHARTER

Project Title: PM 686 Capstone: Project Risk Identification for Government Projects in Anchorage and Palmer, AK

Project Sponsor: Primary Advisor

Date Prepared: 8 December 2014 (Final Version)

Project Manager: August Banks

Project Customer: Project Management Dept.

Project Purpose or Justification:

From the moment of inception of a project, risk is a major concern. The project manager for this project realizes that project risk needs to be actively and continuously monitored throughout the project life cycle. While any number of political, administrative, technical, and project management factors may be causes to consider for cost and schedule overruns in government projects (PMBOK®, government extension, p.65), identification of the risks associated with government projects managed via contract will be our focus. Subject matter experts from the participating government agencies involved in this project (Plant Materials Center of the Alaska Department of Natural Resources (DNR/PMC) and General Services Administration (GSA)) also concur with the need for rigorous project risk management.

Project Description:

The project will utilize literature reviews and surveys to identify and consolidate a common core of risks associated with managing government projects via contract. The primary stakeholder focus will be government PMs associated with the DNR/PMC and the GSA. Surveys will be used to gather risk related data. Once all data is collected, analyzed and processed for final presentation, the major deliverables (the RBS and the risk register) will be available to the project stakeholders as a guide or template for developing project-specific RBS and risk registers, reducing the likelihood that applicable risks have not been overlooked or omitted from their analyses.

Project and Product Requirements:

The project requirements are a research paper, an RBS and a risk register to be delivered to the Project Management Department along with a final presentation. All Project Progress Performance Milestones (PPMs) with their associated mandatory deliverables as determined by the Project Management Department must be completed.

The project product deliverables will be the paper, the RBS and the risk register to be made available as a checklist for current and future government projects managed by GSA and DNR/PMC PMs in Anchorage and Palmer, AK respectively.

The RBS and risk register should reflect the guidelines in the PMBOK® and its government extension.

The RBS and risk register should provide value to the participating agencies in the form of identifying risks not previously identified to be used in future risk analyses, as well as serving as a sanity check against the risks identified and agreed to by both the customer and the contractor as delineated in the contractor's risk management plan.

Acceptance Criteria:

Successful completion of all deliverables. The RBS and risk register will be provided to the participating agencies to use as tools to improve their risk management efforts.

Initial Risks:

Initial risks are: 1) non-availability of stakeholders when needed, 2) Insufficient or incomplete deliverables necessary to pass the PPM(s), 3) Lack of approval from the IRB for the chosen research methods.

Project Objectives	Success Criteria	Person Approving
Scope:		
Project paper, RBS and Risk register	Deliverables meet the requirements and expectations as documented in the stakeholder register	Primary Advisor
Time:		
Spring 2014 and Fall 2014 semesters	Successful completion of all PPMs culminating in the completion of all project deliverables prior to the end of fall 2014 semester.	Primary Advisor
Cost:		
N/A		
Quality:		
Other:		

(NOTE: all summary milestone due dates below are actual completion dates as of the final PM plan update (8 Dec 2014); all were met on schedule).

Summary Milestones	Due Date
Submission of Abstract, project charter, stakeholder register, preliminary GSP, and selection of three knowledge areas.	31 Jan 2014
Project Scope Statement, requirements documentation, WBS, preliminary Gantt chart, table of contents	21 Feb 2014
Written draft of project management plan, revised abstract, description of research methods, description of expected project deliverables, Gantt chart update	14 Mar 2014
IRB approval of research instruments and analysis, draft presentation of project objectives, charter, and project management plan. Refined description of project deliverables, refined description of three knowledge areas, updated Gantt chart	11 Apr 2014
Final presentation of approved project plan	21 April 2014
Start Project implementation	25 Aug 2014
Data gathering (survey # 1), draft RBS, risk register, revised project management plan	12 Sep 2014
Literature review/research updates, risk analysis and methodology , change control process, revised project management plan	19 Sep 2014
Data gathering (survey # 2), revised RBS, risk register, revised project management plan	3 Oct 2014
Final revision of RBS, risk register, literature review/research updates, research methodology validation, research paper preparation, revision of project management plan	10 Oct 2014
RBS, risk register complete, first draft of research paper, revised abstract	7 Nov 2014
RBS, risk register, and paper complete, deliverables provided to SMEs of participating agencies, first draft of presentation.	21 Nov 2014
Presentation/Project Acceptance	2 Dec 2014
Submit deliverables to ESPM Department	8 Dec 2014

Estimated Budget:

No funds of a significant amount are required for this project.

Project Manager Authority Level

Staffing Decisions:

The PM is the only staff member.

Budget Management and Variance:

N/A

Technical Decisions:

N/A

Conflict Resolution:

Conflict resolution will be the responsibility of the PM. The PM will request assistance from the primary advisor should the conflict exceed the PMs capacity to resolve.

Escalation Path for Authority Limitations:

The primary advisor will be the first individual in the escalation path to be considered.

Approvals:

Project Manager Signature	Sponsor or Originator Signature
Project Manager Name	Sponsor or Originator Name
Date	Date

August Banks
PM 686
Fall 2014

Project Risk Identification for Government Projects in Anchorage and Palmer, AK: Documentation - Agency consent to participate (in lieu of Sponsor Letters).

Since this project was not performed in a private sector context (only government agencies involved), there are no sponsor letters associated with it. In lieu of sponsor letters, the following documentation from the participating agencies (GSA and DNR/PMC) is provided confirming their consent to participate in the project:

Drew Wareham - 10PSNR <andrew.wareham@gsa.gov> 11/7/13

to me, George

August,

As discussed in our meeting last month, GSA, on behalf of myself and my director, wee will be happy to participate in the research you are doing for your capstone project. No problem working interviews with our staff.

V/R

Drew

--

Andrew J. Wareham
Client Resources Manager
Northern Service Center
GSA, PBS, Northwest/Arctic Region
222 West 7th Ave Box 5
Anchorage, Alaska 99513
907.271.1549 Office
907.903.7577 Mobile
907.271.3086 Fax
andrew.wareham@gsa.gov

Support for August Banks' PM 686A Capstone Project Inbox x

August Banks <arbanksjr@alaska.edu> Mar 21

to Brianne

Brianne:

Roger pointed me in your direction. I'm looking for an additional governmental organization to participate in my capstone project. I'm looking for three to five PMs to participate in identifying risks associated with managing projects accomplished by contract. If you could, please give me a call ((907) 360-2122), I'd really appreciate it. Thank you.

Vr,

August

Brianne Blackburn <blackburn brianne@gmail com> Mar 26

to me

Hi August,

Thanks for sending the background information on your project. I would be happy to participate.

See text below for an overview of our program:

In 1972 the Northern Latitude Plant Materials Center (PMC) was established within the Alaska Department of Natural Resources, Division of Agriculture. The PMC's mission is to develop and transfer state-of-the-art plant science technology to support the Alaskan agriculture industry. The PMC continues to adapt and expand to serve Alaska's agricultural needs. Newer programs such as the Invasive Weeds and Agricultural Pests Program, the Ethnobotany Teaching Garden, Soil Analysis Lab and Plant Pathology Lab complement existing programs. Major areas of focus for the PMC are developing adapted plant varieties, technical reclamation assistance, and techniques for revegetation and erosion control. The PMC uses 405 acres outside Palmer for native plant seed cultivation, research, technology and knowledge transfer. The Divison of Agriculture funds the PMC, although some funding comes from non-state sources, such as the U.S. Department of Agriculture (USDA), US. Bureau of Land Management (BLM) and U.S. Forest Service (USFS).

Thanks,
Brianne

Below is documentation from the participating agencies confirming the project premises, objectives, requirements, and expectations associated with the project:

August's revised abstract and stakeholder register for PM 686A Inbox x

August Banks <arbanksjr@alaska.edu> Apr 2

to Drew, Brianne

Drew and Brianne:

Attached are my revised abstract and stakeholder register. Please read and comment as needed. In the "requirements" and "expectations" sections of the register are what I consider to be the minimum requirements that may be your concerns. My premise is that you all aren't currently using an RBS and risk register in the form of a checklist or guide. I consider customer satisfaction to be the primary success factor for this project, so please let me know what additional requirements you want me to address. If you could provide your feedback by Friday, 4 Apr 2014 I'd appreciate it. Again, thanks a bunch for your support.

Vr,

August

2 Attachments

Drew Wareham - 10PSNR <andrew.wareham@gsa.gov> Apr 3

to me, Brianne

August,

This looks good to me. Your premise is correct in that we do not use any kind of risk checklist currently in our organization. However, we have been told that sometime in the near future (when, I have no idea).

V/R

Drew

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Brianne Blackburn <blackburn.brianne@gmail.com> Apr 3

to Drew, me

August,

Your abstract and stakeholder register look good to me as well. As I mentioned when we last spoke, we have very little Project Management Structure in place within my division and therefore do not use any kind of register or checklist for identifying risks. A quick note-my participation in your project will more directly reflect my division and section (DNR, Division of Agriculture, Plant Material Center) than the whole of DNR.

Thanks,
Brianne

August Banks <arbanksjr@alaska.edu> Apr 3

to Brianne, Drew

Understood and thanks to you both for the quick response. I'll keep you posted as to any developments beyond what's planned.

Vr,

August

August Banks
PM 686B

RISK BREAKDOWN STRUCTURE
(GSA AND PMC/DNR CONSOLIDATION)

GSA provided the risk inputs indicated in **RED**.

PMC/DNR provided the risk inputs indicated in **BLUE**.

Blue Asterisk: GSA – identified risk that is also applicable to PMC/DNR.
Red Asterisk: PMC/DNR – identified risk that is also applicable to GSA.

1. Technical risk
   - 1.1 Scope Definition
     - **1.1.1 Reliance on reams of federal and other specifications and references dramatically escalates costs yet does not clearly define scope.**
     - **1.1.2 End user's needs not adequately considered in project design.**
     - **1.1.3 Current facility conditions not fully reviewed - resulting in overlooked deficiencies and increased project costs. ***
   - 1.2 Requirements Definition
     - **1.2.1 Government not able to clarify and/or define the relevance of the project specifications and references.**
     - **1.2.2 Previous projects not well documented (or information is overlooked), resulting in unforeseen conditions.**
     - **1.2.3 No space in the market that meets Agency's requirements; build-to suits are extremely difficult to approve in this fiscal climate**
     - **1.2.4 Lack of definition in requirements results in substandard product selection***
   - 1.3 Estimates, assumptions, and constraints
     - **1.3.1 Market conditions limit competition, escalating offered pricing**
     - **1.3.2 Overly onerous government regulations and requirements limit competition, escalating offered pricing**
   - 1.4 Technical Processes
   - 1.5 Technology
     - **1.5.1 Rapidly changing technologies result in irrelevant / wasted final construction products**
     - **1.5.2 Installed technologies become obsolete and/or proprietary products no longer supported**
     - **1.5.3 New technology makes it difficult and costly to upgrade or adapt old infrastructure. Often these details are overlooked initially***
   - 1.6 Technical interfaces
   - 1.7 Design
     - **1.7.1 Limited design firm availability results in escalated design costs**
     - **1.7.2 Unique design requirements not fully understood by design firm which results in over-design and increased costs**
     - **1.7.3 Design and installation works on paper but does not work in installation**
   - 1.8 Performance
     - **1.8.1 Key design and/or construction personnel and/or firms exit during project execution ***

1.8.2 **Misapplied or misunderstood warranties can lead to costly repairs or services***

1.9 Reliability and maintainability

1.10 Safety

1.11 Security

1.11.1 **U.S Government security requirements time consuming and costly pushing prices higher**

1.12 Test and acceptance

1.12.1 **All government projects regardless of size and magnitude only incur a 1 year warranty from contractor resulting in costly repairs/replacement for substandard work where problems are found beyond the one year warranty period.**

2. Management Risk

2.1 Project Management

2.1.1 **Schedule not developed from Work Breakdown Structure**

2.1.2 **Planning is too poor to support the desired implementation tempo**

2.1.3 **Project managers making contract related decisions without contracting officer approval**

2.1.4 **Members of the project team unfamiliar with Alaska and rural areas (inexperienced)**

2.1.5 **Changes management process lengthy or poorly planned leads to delays***

2.2 Program/Portfolio Management

2.2.1 **Program priorities change and critical resources are reassigned which make it difficult to meet schedule or quality goals***

2.3 Operations management

2.4 Organization

2.4.1 **Organization under constant re-structuring changing policies and procedures that can delay procurement and contracting flow.** *

2.5 Resourcing

2.5.1 **Government procurement financial limitations result in piecemeal, inadequate, incomplete and overly expensive projects**

2.6 Communication

2.6.1 **Client/end-user fails to adequately represent their needs during project development.**

2.6.2 **End-user's input ignored during project development** *

2.6.3 **Over-reliance on undocumented and improperly vetted field agreements results in miscommunications and project failures**

2.6.4 **Communication with subs or contractors through organizational processes can be slow and can result in miscommunication***

2.7 Health, safety and environment

2.8 Quality

3. Commercial Risk

3.1 Contractual terms and conditions

3.1.1 **Project expectations not clearly defined (such as as-built drawing requirements)**

3.1.2 **Contractor has the wrong version of the SOW; completed project is incorrect**

3.1.3 Fraud
3.1.4 Agency local point of contact or onsite point of contact directs contractor to do something outside the SOW (without first notifying the government project manager
3.1.5 Contract terms unclear or ambiguous resulting in confusion
3.2 Internal procurement
3.2.1 Government regulations require and independent government estimate (IGE) be created prior to accepting bids from contractors. When contractors come in with proposals over the IGE a "bid bust" condition occurs causing procurement delays
3.2.2 Government processes take too long and therefore potential bidders/offerers give up on the process and lease to a private entity instead
3.2.3 Procurement process inflexible and allow contracts awarded based on cost instead of technical ability or skill*
3.3 Suppliers and vendors
3.3.1 Occasionally there are not enough bids/proposals submitted to meet regulatory requirements resulting in procurement delays.
3.3.2 Exaggerated resumes from potential bidders on projects
3.3.3 Small business owners or less savvy lessors do not want to deal with government, therefore losing an opportunity for the government to lease suitable space
3.4 Subcontracts
3.4.1 On-site subcontract personnel act on communications with government and/or end-user without proper authorization *
3.4.2 Subcontractor communicate through their chain of command making leading to miscommunication or lengthy response times*
3.5 Client/customer stability
3.5.1 Representative of end-user changes, resulting in changed requirements/expectations
3.5.2 Agency terminates their lease early therefore leaving GSA with vacant space on the books, costing taxpayer dollars
3.5.3 Other fellow State or City government agencies refuse to sign federal government lease contracts
3.5.4 Turnover requires unplanned orientation for new representatives or changes in expectations and requirements*
3.6 Partnerships and joint ventures
4. External Risk
4.1 Legislation
4.1.1 Appropriations or Authorization Bills delayed
4.1.2 "Sequester" funding cuts result in cancelled and/or delayed projects
4.2 Exchange Rates
4.3 Site/facilities
4.4 Environmental/weather
4.5 Severe weather events or fire will delay seasonal projects and require contract extension and schedule rework*
4.6 Competition
4.6.1 Limited competition due to remote Alaska location

- 4.7 Regulatory
  - **4.7.1 Product depends on government regulations, which change unexpectedly**
- 4.8 Political
  - **4.8.1 Changing priorities associated with an administration change**
- 4.9 Country
- 4.10 Social/demographic
  - **4.10.1 Government mandated award categories for socioeconomic disadvantaged companies (small business, 8a, DAV etc.) limit options for procurement and increase costs by as much as 30%**
- 4.11 Pressure groups
- 4.12 Force majeure

5. Organizational Risk
   - 5.1 Decision Processes
     - **5.1.1 Team members do not buy into the project and consequently do not provide level of performance needed**
   - 5.2 Financial
     - **5.2.1 Budget cycle not always in line with optimal project timeline***
   - 5.3 Culture
     - **5.3.1 Lack of transparency results in projects that are not in taxpayers best interest**
     - **5.3.2 Leadership focus on "executing the budget" results in wasteful projects/procurements**
   - 5.4 Resources
     - 5.4.1 Government
     - **5.4.2 "Unfunded requirements" and un-resourced regulatory mandates force procurement staffs to take shortcut to keep up with workload. This primarily impacts the "contracting officer" functions**
   - 5.5 Organizational structure
     - **5.5.1 "Government reinvention" initiatives result in leadership personnel changes and changes in requirements/expectations and/or funding**
     - **5.5.2 Siloed organizational structure inhibits communication between procurement or administrative departments and technical experts***

Project Risk Identification for Government Projects in Anchorage and Palmer, AK

TOP RISKS

RBS Categories	Risk Item and Description	Qualitative Ranking P	I	Ranking	Risk Response Strategies	Post-Response Qualitative Ranking P	I	P*I
Technical Risks								
Scope Definition	Reliance on reams of federal and other specifications and references dramatically escalates costs yet does not clearly define scope.	H	H	H	Project Manager thouroughly edits all technical specs, drawings and references to weed out as much useless/redundant/non-applicable info as possible - while ensuring critical info is retained and/or added (often the most basic/critical info ends up missing - largely due to the overload of government minutiae).	H	-	-
Scope Definition	Current facility conditions not fully reviewed - resulting in overlooked deficiencies and increased project costs.	H	H	H	More thorough pre-design orientation with design staff	H	H	H
Requirements Definition	Lack of definition in requirements results in substandard product selection	L	L	L	Ensure clear understanding of customer requirements and desired final outcome of product or service	L	L	L
Requirements Definition	Previous projects not well documented (or information is overlooked), resulting in unforeseen conditions.	H	M	H	This issue can only be addressed by properly staffing records management divisions with properly trained and resourced personnel and systems.	M	M	M
Estimates, Assumptions & Constraints	Overly onerous government regulations and requirements limit competition, escalating offered pricing	H	H	H	Agencies must work to maximize competition by implementing a variety of contracting tools/methods. Unfortunately, government "socio/econimic" mandates reward agencies for eliminating competion in favor of "small/disadvantaged" businesses, etc.	M	M	M
Estimates, Assumptions & Constraints	Market conditions limit competition, escalating offered pricing	M	M	M	Advertise project solicitations across the entire nation to ensure the greatest possible competition	L	L	L
Performance	Key design and/or construction personnel and/or firms exit during project execution	M	H	H	Maintain thorough project documentation for background	L	H	M
Technology	New technology makes it difficult and costly to upgrade or adapt old infrastructure. Often these details are overlooked initially	M	M	M	Ensure replacement technologies are tested and work properly prior to launch and implementation	L	L	L
Performance	Misapplied or misunderstood warranties can lead to costly repairs or services	L	L	L	Make sure all parties clearly understand contracual conditions of any warranties associated with project	L	L	L
Organizational Risks								
Financial	Budget cycle not always in line with optimal project timeline	L	L	L	Fiscal year and budgets are on set schedule each year. Build project timelines to accomodate.	L	L	L
Culture	Leadership focus on "executing the budget" results in wasteful projects/procurements	H	H	H	Federal government leadership must get real on this issue, as Project Managers have minimal influence when leadership demands "executing the budget" i.e., spending every dime we can get regardless of actual needs and highly inefficient/innefective project outcomes.	H	H	H
Culture	Lack of transparency results in projects that are not in taxpayers best interest	H	H	H	Government leaders must implement strategies to ensure the public is easily able to learn how their taxes are being used - especially with regard to construction, repair and renovation projects. Offering the media full access to completed project information at least on an annual basis would be a great starting point.	L	L	L

Organization	Organization under constant re-structuring changing policies and procedures that can delay procurement and contracting flow
Resourcing	Government procurement financial limitations result in piecemeal, inadequate, incomplete and overly expensive projects
Communication	Client/end-user fails to adequately represent their needs during project development
Communication	Over-reliance on undocumented and improperly vetted field agreements results in miscommunications and project failures
Communication	Communication with subs or contractors through organizational processes can be slow and can result in miscommunication
Contractual terms and conditions	Project expectations not clearly defined (such as as-built drawing requirements)
Contractual terms and conditions	Contractor has the wrong version of the SOW; completed project is incorrect
Contractual terms and conditions	Fraud
Contractual terms and conditions	Agency local point of contact or onsite point of contact directs contractor to do something outside the SOW (without first notifying the government project manager
Contractual terms and conditions	Contract terms unclear or ambiguous resulting in confusion
Internal Procurement	Government regulations require and independent government estimate (IGE) be created prior to accepting bids from contractors. When contractors come in with proposals over the IGE a "bid bust" condition occurs causing procurement delays
Internal Procurement	Government processes take too long and therefore potential bidders/offerers give up on the process and lease to a private entity instead
Internal Procurement	Procurement process inflexible and allow contracts awarded based on cost instead of technical ability or skill
Suppliers and Vendors	Occasionally there are not enough bids/proposals submitted to meet regulatory requirements resulting in procurement delays
Suppliers and Vendors	Exaggerated resumes from potential bidders on projects
Suppliers and Vendors	Small business owners or less savvy lessors do not want to deal with government, therefore losing an opportunity for the government to lease suitable space
Subcontracts	On-site subcontract personnel act on communications with government and/or end-user without proper authorization
Client/Customer Stability	Representative of end-user changes, resulting in changed requirements/expectations
Client/Customer Stability	Agency terminates their lease early therefore leaving GSA with vacant space on the books, costing taxpayer dollars
Client/Customer Stability	Other fellow State or City government agencies refuse to sign federal government lease contracts
Legislation	Appropriations or Authorization Bills delayed
Legislation	"Sequester" funding cuts result in cancelled and/or delayed projects
Competition	Limited competition due to remote Alaska location
Regulatory	Product depends on government regulations, which change unexpectedly
Political	Changing priorities associated with an administration change
Social/Demographic	Government mandated award categories for socioeconomic disadvantaged companies (small business, 8a, DAV etc.) limit options for procurement and increase costs by as much as 30%

Decision Processes	Team members do not buy into the project and consequently do not provide level of performance needed
Organizational Structure	"Government reinvention" initiatives result in leadership personnel changes and changes in requirements/expectations and/or funding
Organizational Structure	Siloed organizational structure inhibits communication between procurement or administrative departments and technical experts